

GELMAN Science Inc.

Gelman Sciences Inc.
642 South Wagner Road
Ann Arbor, MI 48103
734.436.4025 phone
734.436.4040 fax

CASE NARRATIVE

**Monthly Data Pall Life Sciences
Project: 1,4-Dioxane Remediation
Date: September, 2021**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Gelman Sciences, Inc. d/b/a Gelman Sciences Inc. attests to the validity of the laboratory data generated by Gelman Sciences Inc, Ann Arbor, Michigan Environmental Laboratory facilities reported herein. All analyses performed by Gelman Sciences Inc. Environmental Laboratory facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Gelman Sciences Inc. Environmental group has reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All bromate samples were analyzed by Gelman Sciences Inc. Environmental Laboratory. Due to lead time on instrument repair and new equipment delivery all 1,4-dioxane Samples were analyzed by Ann Arbor Technical Services (ATS). The test results in this report meet all NELAP requirements for parameters for which accreditation are required or available. Any exceptions to NELAP requirements are noted in this report. All exceptions are noted per laboratory standard operating procedure based on EPA Method 1624c. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results. The odd even rule is used for rounding. Holding times were met for all samples analyzed. Proper preservation was observed on all samples unless otherwise detailed in the individual sections below.

RECEIPT/ STORAGE

The samples were received on the days noted in the report for the Month; the samples arrived in good condition, properly preserved and on ice when necessary. Samples that require 1,4-dioxane analysis are collected in hydrochloric HCl acid-preserved vials to a pH of ≤2, except for the Pall ozone treatment samples. These samples have chemicals that, when mixed with the HCl acid, cause interferences and trap damage. Every attempt is made to analyze these samples within 24 hours of receipt.

Samples that require Bromate analysis are collected and preserved in the laboratory with ethylene di-amine and refrigerated.

Samples that are delivered to the laboratory the same day as they are collected are likely not to have reached a fully chilled temperature. This is acceptable as long as there is evidence that chilling has begun. All samples are iced or refrigerated at 4°C ($\pm 2^\circ\text{C}$) from the time of collection until sample preparation or analysis.

1,4-Dioxane (GC-MS)

All ground water and treated water samples were analyzed for 1,4-Dioxane (GC-MS) in accordance with EPA 1624C, which has been modified to enhance detection limits. Samples that were diluted to bring them within the calibrated range of the instrument are noted with a "D" under the Qualifier Code section of the data report. Reporting limits were adjusted based on each dilution.

Reporting limit for undiluted samples is 1ppb (part per billion, micrograms per liter, $\mu\text{g/L}$). All quality control parameters were within the acceptance limits for reported samples unless indicated.

Bromate (Ion Chromatography)

All surface water and treated samples were analyzed for Bromate (Ion Chromatography) in accordance with EPA 300.1. Surrogates are added to all samples. All quality control parameters were within the acceptance limits with the balance of sample analyzed.

The reporting limit for treated samples is 5.0ppb and for surface samples is 2.0ppb.

Qualifiers

1,4-Dioxane Qualifier Codes:

<i>Qualifier Code</i>	<i>Description</i>
nd:	The compound was analyzed for, but not detected at or above the detection limit indicated.
D:	Analyte value quantified from a dilution; reporting limit is raised to reflect dilution.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve, reported as estimate.
B:	The sample vials contained air bubbles larger than 5mm, which may affect compound results.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
M:	Matrix effects, sample required dilution.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 45 day hold time
O:	Samples analyzed in outside laboratory, Ann Arbor Technical Services.
S:	Samples split with DEQ.

Bromate Qualifier Codes:

<i>Qualifier Code</i>	<i>Description</i>
nd:	The compound was analyzed for but was not detected at or above the detection limit indicated.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 28 day hold time

Manager: Susan E.O. Peters Susan E.O. Peters Date: 10-08-21

Report Checked by: Ray Woods



Date: 10/8/21

GELMAN Sciences Inc.

Sample Analysis Report

September, 2021

642 South Wagner Road
Ann Arbor, MI 48103-9019 US
734.436.4025 phone

Analyst Initials: EOP
Date: 10-3-21

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
LB-4-09-17-21-10:25-1	470	10						o,d
LB-4-09-17-21-10:25-2					180	40		
TW-21-09-17-21-10:35-1	250	10						o,d
TW-21-09-17-21-10:35-2					120	40		

E

TW-18-09-17-21-10:40-1	240	10						o,d
TW-18-09-17-21-10:40-2					96	40		
TW-23-09-17-21-10:30-1	350	10						o,d
TW-23-09-17-21-10:30-2					210	40		

Marshy

PW-1-09-17-21-10:45-1	770	10						o,d
PW-1-09-17-21-10:45-2					190	40		

SW

TW-22-09-17-21-11:00-1	480	10						o,d
TW-22-09-17-21-11:00-2					84	40		
TW-28-09-17-21-11:08-1	670	10						o,d
TW-28-09-17-21-11:08-2					160	40		

Monitoring Wells

B2

MW-12s-09-21-21-10:17-1	nd	1.0						o
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C3

MW-1 Replacement-09-10-21-11:23-1	1600	40						o,d
MW-11i-09-21-21-11:44-1	4	1.0						o
MW-125-09-23-21-14:20-1	230	10						o,d
MW-127s-09-23-21-12:30-1	nd	1.0						o
MW-128s-09-22-21-14:38-1	2	1.0						o

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-12d-09-21-21-10:20-1	53	1.0						o
MW-18s-09-21-21-14:31-1	nd	1.0						o
MW-22-09-07-21-15:11-1	1400	100						o,d
MW-23-09-10-21-13:50-1	180	10						o,d
MW-24-09-13-21-08:40-1	570	10						o,d
MW-25d-09-10-21-11:52-1	64	10						o,d
MW-28-09-08-21-11:15-1	nd	1.0						o
MW-2d-09-15-21-08:53-1	36	1.0						o
MW-37-09-22-21-11:50-1	230	20						o,d

D0

4141 Jackson Rd-09-15-21-12:27-1	2	1.0						o
A2 Cleaning Supply-09-01-21-12:20-1	44	1.0						o
MW-42d-09-07-21-11:07-1	nd	1.0						o
MW-42s-09-07-21-12:15-1	nd	1.0						o
MW-51-09-23-21-09:00-1	nd	1.0						o
MW-53d-09-01-21-09:25-1	nd	1.0						o
MW-53i-09-01-21-12:00-1	57	1.0						o
MW-53s-09-01-21-10:34-1	nd	1.0						o
MW-93-09-07-21-09:33-1	1	1.0						o

D2

373 Pinewood Shallow-09-15-21-10:45-1	180	10						o,d
465 Dupont-09-15-21-14:10-1	680	20						o,d
MW-13-09-27-21-10:26-1	nd	1.0						o
MW-131s-09-22-21-10:24-1	nd	1.0						o
MW-134i-09-13-21-12:54-1	8	1.0						o
MW-134s-09-13-21-14:10-1	10	1.0						o
MW-14d-09-28-21-09:40-1	nd	1.0						o

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-56s-09-08-21-10:30-1	51	1.0						o
E								
373 Pinewood Deep-09-15-21-10:16-1	nd	1.0						o
MW-103s-09-02-21-11:30-1	85	4						o,d
MW-112i-09-02-21-10:11-1	3	1.0						o
MW-112s-09-02-21-09:00-1	10	1.0						o
MW-127d-09-23-21-10:58-1	nd	1.0						o
MW-128d-09-22-21-13:10-1	nd	1.0						o
MW-131d-09-22-21-09:08-1	nd	1.0						o
MW-134d-09-13-21-11:34-1	6	1.0						o
MW-56d-09-08-21-09:07-1	nd	1.0						o
MW-76i-09-02-21-12:50-1	90	10						o,d
MW-76s-09-01-21-14:10-1	290	10						o,d
MW-84s-09-01-21-14:00-1	560	10						o,d
Marshy								
AMW-1-09-13-21-08:26-1	190	10						o,d
AMW-2-09-10-21-13:15-1	50	10						o,d
MOW-1-09-10-21-13:25-1	360	10						o,d
NMW-1d-09-13-21-09:09-1	680	20						o,d
NMW-1s-09-13-21-09:15-1	1800	40						o,d
NMW-2d-09-13-21-09:30-1	700	40						o,d
NMW-2s-09-13-21-09:36-1	1500	100						o,d
NMW-3d-09-13-21-08:56-1	300	10						o,d
NMW-3s-09-13-21-08:47-1	320	10						o
PMW-1-09-13-21-08:20-1	130	10						o,d
PMW-2-09-13-21-09:45-1	5700	100						o,d
PMW-3-09-13-21-09:53-1	6000	100						o,d

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
PMW-4-09-13-21-09:21-1	1100	40						o,d
SH								
MW-11s-09-21-21-11:30-1	nd	1.0						o
MW-14s-09-28-21-09:35-1	nd	1.0						o
MW-25s-09-10-21-11:58-1	260	10						o
MW-2s-09-15-21-08:49-1	2	1.0						o
MW-5d-09-10-21-12:10-1	4800	80						o,d
SW								
MW-57-09-07-21-13:39-1	2	1.0						o
Surface Water								
Not Applicable								
HC/HR-09-01-21-08:50-1			nd	2.0				
HC/HR-09-02-21-09:40-1			nd	2.0				
HC/HR-09-03-21-09:25-1			nd	2.0				
HC/HR-09-07-21-09:25-1			nd	2.0				
HC/HR-09-08-21-09:20-1			nd	2.0				
HC/HR-09-09-21-06:30-1			nd	2.0				
HC/HR-09-10-21-11:18-1			nd	2.0				
HC/HR-09-13-21-10:55-1			nd	2.0				
HC/HR-09-14-21-09:35-1			nd	2.0				
HC/HR-09-15-21-09:10-1			nd	2.0				
HC/HR-09-16-21-10:05-1			nd	2.0				
HC/HR-09-17-21-10:00-2			nd	2.0				
HC/HR-09-20-21-09:30-1			nd	2.0				
HC/HR-09-21-21-09:55-1			nd	2.0				
HC/HR-09-22-21-10:05-1			nd	2.0				

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
HC/HR-09-23-21-10:15-1			nd	2.0				
HC/HR-09-24-21-10:20-1			nd	2.0				
HC/HR-09-27-21-10:30-1			nd	2.0				
HC/HR-09-28-21-11:30-1			nd	2.0				
HC/HR-09-29-21-09:25-1			nd	2.0				
HC/HR-09-30-21-09:58-1			nd	2.0				

Treatment System

OUTFALL-09-01-21-1	6	1.0						o
OUTFALL-09-01-21-2			8.0	5.0				
OUTFALL-09-02-21-1	6	1.0						o
OUTFALL-09-02-21-2			4.9	5.0				
OUTFALL-09-05-21-1	6	1.0						o
OUTFALL-09-05-21-2			5.8	5.0				
OUTFALL-09-06-21-1	6	1.0						o
OUTFALL-09-06-21-2			6.6	5.0				
OUTFALL-09-07-21-1	5	1.0						o
OUTFALL-09-07-21-2			8.2	5.0				
OUTFALL-09-08-21-1	6	1.0						o
OUTFALL-09-08-21-2			9.2	5.0				
OUTFALL-09-09-21-1	6	1.0						o
OUTFALL-09-09-21-2			11	5.0				
OUTFALL-09-12-21-1	6	1.0						o
OUTFALL-09-12-21-2			11	5.0				
OUTFALL-09-13-21-1	6	1.0						o
OUTFALL-09-13-21-2			11	5.0				
OUTFALL-09-14-21-1	6	1.0						o
OUTFALL-09-14-21-2			8.2	5.0				

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
OUTFALL-09-15-21-1	6	1.0						o
OUTFALL-09-15-21-2			9.4	5.0				
OUTFALL-09-16-21-1	6	1.0						o
OUTFALL-09-16-21-2			7.9	5.0				
OUTFALL-09-19-21-1	6	1.0						o
OUTFALL-09-19-21-2			7.2	5.0				
OUTFALL-09-20-21-1	6	1.0						o
OUTFALL-09-20-21-2			8.3	5.0				
OUTFALL-09-21-21-1	5	1.0						o
OUTFALL-09-21-21-2			8.3	5.0				
OUTFALL-09-22-21-1	5	1.0						o
OUTFALL-09-22-21-2			7.6	5.0				
OUTFALL-09-23-21-1	5	1.0						o
OUTFALL-09-23-21-2			8.6	5.0				
OUTFALL-09-26-21-1	5	1.0						o
OUTFALL-09-26-21-2			7.4	5.0				
OUTFALL-09-27-21-1	5	1.0						o
OUTFALL-09-27-21-2			9.0	5.0				
OUTFALL-09-28-21-1	6	1.0						o
OUTFALL-09-28-21-2			8.2	5.0				
OUTFALL-09-29-21-1	5	1.0						o
OUTFALL-09-29-21-2			8.4	5.0				
OUTFALL-09-30-21-1	6	1.0						o
OUTFALL-09-30-21-2			8.6	5.0				
Red Pond-09-07-21-07:30-1	330	20						o,d
Red Pond-09-07-21-07:30-					140	40		
Red Pond-09-13-21-07:20-1	340	10						o,d

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
Red Pond-09-13-21-07:20-					140	40		
Red Pond-09-20-21-08:25-1	350	10						o,d
Red Pond-09-20-21-08:25-2					150	40		
Red Pond-09-27-21-07:20-1	350	10						o,d
Red Pond-09-27-21-07:20-2					150	40		



Data Transmittal Cover Page

Project Name: Pall Corporation
ATS Project Number: G001-002
ATS Report Number(s): Org_SRP_Sep_20021
Client PO Number: 4504859621
Project Description: This data report contains the results of 180 water samples, received by ATS during the month of September, to be analyzed for 14 organics.

We certify that the analyses for the project have been conducted in accordance with practices provided in the standard operating procedures and applicable state, local and national regulations. All analytical procedures are in accordance with the ATS Laboratory Standard Operating Procedures. Any deviations from the standard operating procedures, DQOs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

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		FAX Number:	
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LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 10/4/21

SRP / SDC Number(s):

Org_SRP_Sep_20021, Org_SRP_Sep_20021, Org_SRP_Sep_20021

Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following 180 samples that were received at Ann Arbor Technical Services, Inc. (ATS) during the month of September under PO number 4504859621, and associated multi-site-specific QA/QC.

Samples:

Client Sample Identification	Sample Date	Required Test	Analyzed	Notes
A100001	9/15/21	Organic	Yes	
A100002	9/16/21	Organic	Yes	
A100003	9/17/21	Organic	Yes	
A100004	9/18/21	Organic	Yes	
A100005	9/19/21	Organic	Yes	
A100006	9/20/21	Organic	Yes	
A100007	9/21/21	Organic	Yes	
A100008	9/22/21	Organic	Yes	
A100009	9/23/21	Organic	Yes	
A100010	9/24/21	Organic	Yes	
A100011	9/25/21	Organic	Yes	
A100012	9/26/21	Organic	Yes	
A100013	9/27/21	Organic	Yes	
A100014	9/28/21	Organic	Yes	
A100015	9/29/21	Organic	Yes	
A100016	9/30/21	Organic	Yes	
A100017	9/1/21	Organic	Yes	
A100018	9/2/21	Organic	Yes	
A100019	9/3/21	Organic	Yes	
A100020	9/4/21	Organic	Yes	
A100021	9/5/21	Organic	Yes	
A100022	9/6/21	Organic	Yes	
A100023	9/7/21	Organic	Yes	
A100024	9/8/21	Organic	Yes	
A100025	9/9/21	Organic	Yes	
A100026	9/10/21	Organic	Yes	
A100027	9/11/21	Organic	Yes	
A100028	9/12/21	Organic	Yes	
A100029	9/13/21	Organic	Yes	
A100030	9/14/21	Organic	Yes	
A100031	9/15/21	Organic	Yes	
A100032	9/16/21	Organic	Yes	
A100033	9/17/21	Organic	Yes	
A100034	9/18/21	Organic	Yes	
A100035	9/19/21	Organic	Yes	
A100036	9/20/21	Organic	Yes	
A100037	9/21/21	Organic	Yes	
A100038	9/22/21	Organic	Yes	
A100039	9/23/21	Organic	Yes	
A100040	9/24/21	Organic	Yes	
A100041	9/25/21	Organic	Yes	
A100042	9/26/21	Organic	Yes	
A100043	9/27/21	Organic	Yes	
A100044	9/28/21	Organic	Yes	
A100045	9/29/21	Organic	Yes	
A100046	9/30/21	Organic	Yes	
A100047	9/1/21	Organic	Yes	
A100048	9/2/21	Organic	Yes	
A100049	9/3/21	Organic	Yes	
A100050	9/4/21	Organic	Yes	
A100051	9/5/21	Organic	Yes	
A100052	9/6/21	Organic	Yes	
A100053	9/7/21	Organic	Yes	
A100054	9/8/21	Organic	Yes	
A100055	9/9/21	Organic	Yes	
A100056	9/10/21	Organic	Yes	
A100057	9/11/21	Organic	Yes	
A100058	9/12/21	Organic	Yes	
A100059	9/13/21	Organic	Yes	
A100060	9/14/21	Organic	Yes	
A100061	9/15/21	Organic	Yes	
A100062	9/16/21	Organic	Yes	
A100063	9/17/21	Organic	Yes	
A100064	9/18/21	Organic	Yes	
A100065	9/19/21	Organic	Yes	
A100066	9/20/21	Organic	Yes	
A100067	9/21/21	Organic	Yes	
A100068	9/22/21	Organic	Yes	
A100069	9/23/21	Organic	Yes	
A100070	9/24/21	Organic	Yes	
A100071	9/25/21	Organic	Yes	
A100072	9/26/21	Organic	Yes	
A100073	9/27/21	Organic	Yes	
A100074	9/28/21	Organic	Yes	
A100075	9/29/21	Organic	Yes	
A100076	9/30/21	Organic	Yes	
A100077	9/1/21	Organic	Yes	
A100078	9/2/21	Organic	Yes	
A100079	9/3/21	Organic	Yes	
A100080	9/4/21	Organic	Yes	
A100081	9/5/21	Organic	Yes	
A100082	9/6/21	Organic	Yes	
A100083	9/7/21	Organic	Yes	
A100084	9/8/21	Organic	Yes	
A100085	9/9/21	Organic	Yes	
A100086	9/10/21	Organic	Yes	
A100087	9/11/21	Organic	Yes	
A100088	9/12/21	Organic	Yes	
A100089	9/13/21	Organic	Yes	
A100090	9/14/21	Organic	Yes	
A100091	9/15/21	Organic	Yes	
A100092	9/16/21	Organic	Yes	
A100093	9/17/21	Organic	Yes	
A100094	9/18/21	Organic	Yes	
A100095	9/19/21	Organic	Yes	
A100096	9/20/21	Organic	Yes	
A100097	9/21/21	Organic	Yes	
A100098	9/22/21	Organic	Yes	
A100099	9/23/21	Organic	Yes	
A1000100	9/24/21	Organic	Yes	
A1000101	9/25/21	Organic	Yes	
A1000102	9/26/21	Organic	Yes	
A1000103	9/27/21	Organic	Yes	
A1000104	9/28/21	Organic	Yes	
A1000105	9/29/21	Organic	Yes	
A1000106	9/30/21	Organic	Yes	
A1000107	9/1/21	Organic	Yes	
A1000108	9/2/21	Organic	Yes	
A1000109	9/3/21	Organic	Yes	
A1000110	9/4/21	Organic	Yes	
A1000111	9/5/21	Organic	Yes	
A1000112	9/6/21	Organic	Yes	
A1000113	9/7/21	Organic	Yes	
A1000114	9/8/21	Organic	Yes	
A1000115	9/9/21	Organic	Yes	
A1000116	9/10/21	Organic	Yes	
A1000117	9/11/21	Organic	Yes	
A1000118	9/12/21	Organic	Yes	
A1000119	9/13/21	Organic	Yes	
A1000120	9/14/21	Organic	Yes	
A1000121	9/15/21	Organic	Yes	
A1000122	9/16/21	Organic	Yes	
A1000123	9/17/21	Organic	Yes	
A1000124	9/18/21	Organic	Yes	
A1000125	9/19/21	Organic	Yes	
A1000126	9/20/21	Organic	Yes	
A1000127	9/21/21	Organic	Yes	
A1000128	9/22/21	Organic	Yes	
A1000129	9/23/21	Organic	Yes	
A1000130	9/24/21	Organic	Yes	
A1000131	9/25/21	Organic	Yes	
A1000132	9/26/21	Organic	Yes	
A1000133	9/27/21	Organic	Yes	
A1000134	9/28/21	Organic	Yes	
A1000135	9/29/21	Organic	Yes	
A1000136	9/30/21	Organic	Yes	
A1000137	9/1/21	Organic	Yes	
A1000138	9/2/21	Organic	Yes	
A1000139	9/3/21	Organic	Yes	
A1000140	9/4/21	Organic	Yes	
A1000141	9/5/21	Organic	Yes	
A1000142	9/6/21	Organic	Yes	
A1000143	9/7/21	Organic	Yes	
A1000144	9/8/21	Organic	Yes	
A1000145	9/9/21	Organic	Yes	
A1000146	9/10/21	Organic	Yes	
A1000147	9/11/21	Organic	Yes	
A1000148	9/12/21	Organic	Yes	
A1000149	9/13/21	Organic	Yes	
A1000150	9/14/21	Organic	Yes	
A1000151	9/15/21	Organic	Yes	
A1000152	9/16/21	Organic	Yes	
A1000153	9/17/21	Organic	Yes	
A1000154	9/18/21	Organic	Yes	
A1000155	9/19/21	Organic	Yes	
A1000156	9/20/21	Organic	Yes	
A1000157	9/21/21	Organic	Yes	
A1000158	9/22/21	Organic	Yes	
A1000159	9/23/21	Organic	Yes	
A1000160	9/24/21	Organic	Yes	
A1000161	9/25/21	Organic	Yes	
A1000162	9/26/21	Organic	Yes	
A1000163	9/27/21	Organic	Yes	
A1000164	9/28/21	Organic	Yes	
A1000165	9/29/21	Organic	Yes	
A1000166	9/30/21	Organic	Yes	
A1000167	9/1/21	Organic	Yes	
A1000168	9/2/21	Organic	Yes	
A1000169	9/3/21	Organic	Yes	
A1000170	9/4/21	Organic	Yes	
A1000171	9/5/21	Organic	Yes	
A1000172	9/6/21	Organic	Yes	
A1000173	9/7/21	Organic	Yes	
A1000174	9/8/21	Organic	Yes	
A1000175	9/9/21	Organic	Yes	
A1000176	9/10/21	Organic	Yes	
A1000177	9/11/21	Organic	Yes	
A1000178	9/12/21	Organic	Yes	
A1000179	9/13/21	Organic	Yes	
A1000180	9/14/21	Organic	Yes	
A1000181	9/15/21	Organic	Yes	
A1000182	9/16/21	Organic	Yes	
A1000183	9/17/21	Organic	Yes	
A1000184	9/18/21	Organic	Yes	
A1000185	9/19/21	Organic	Yes	
A1000186	9/20/21	Organic	Yes	
A1000187	9/21/21	Organic	Yes	
A1000188	9/22/21	Organic	Yes	
A1000189	9/23/21	Organic	Yes	
A1000190	9/24/21	Organic	Yes	
A1000191	9/25/21	Organic	Yes	
A1000192	9/26/21	Organic	Yes	
A1000193	9/27/21	Organic	Yes	
A1000194	9/28/21	Organic	Yes	
A1000195	9/29/21	Organic	Yes	
A1000196	9/30/21	Organic	Yes	
A1000197	9/1/21	Organic	Yes	
A1000198	9/2/21	Organic	Yes	
A1000199	9/3/21	Organic	Yes	
A1000200	9/4/21	Organic	Yes	
A1000201	9/5/21	Organic	Yes	
A1000202	9/6/21	Organic	Yes	
A1000203	9/7/21	Organic	Yes	
A1000204	9/8/21	Organic	Yes	
A1000205	9/9/21	Organic	Yes	
A1000206	9/10/21	Organic	Yes	
A1000207	9/11/21	Organic	Yes	
A1000208	9/12/21	Organic	Yes	
A1000209	9/13/21	Organic	Yes	
A1000210	9/14/21	Organic	Yes	
A1000211	9/15/21	Organic	Yes	
A1000212	9/16/21	Organic	Yes	
A1000213	9/17/21	Organic	Yes	
A1000214	9/18/21	Organic	Yes	
A1000215	9/19/21	Organic	Yes	
A1000216	9/20/21	Organic	Yes	
A1000217	9/21/21	Organic	Yes	
A1000218	9/22/21	Organic	Yes	
A1000219	9/23/21	Organic	Yes	
A1000220	9/24/21	Organic	Yes	
A1000221	9/25/21	Organic	Yes	
A1000222	9			

Data Deliverables

This data package constitutes a Level II package, other data report packages (Level I, Level IV DVP, EPA RS SDP) are available upon request. There were no laboratory data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane (QOC#8): Samples were analyzed by purge and trap GC/MS in accordance with US EPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography - Mass Spectrometry). An initial calibration with at least five levels was used to generate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Analytical Note:

- None

Analytical QA/QC Summary

Calibration Verification

Method detection was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Shelves

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All system blanks met the acceptance criteria with the following exception:

- None

QA/QC Batch Summary

Internal Standards

Internal standards were at retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

G001-002-214CH_0002211.sdc



G001-002-214CH_0002211.sdc



Organic Analysis Data Summary Sheet

Mr. Greg Trantell
P&I Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: P&I Corporation
Report Date: 10/4/21
ATSDR#: 0002211

Sample Ident/Location: ER-OC-24
Sample Type: re
Sample By: Client
Laboratory Report Date: 00/01/21
Sample Matrix: Water

Parameter: Method: Unit: Result: Reporting Limit: Analyze Date: Analysis Time: Analyzed By:
1,4-Dioxane US EPA 1624 mg/L 0.007 0.001 10/21 13:41 SLD

Quality Assurance / Quality Control Data Summary

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
40021-002 MW-101-002101 Matrix Spike	0.00 mgL	0.00 mgL	0.00 mgL	7.4

SPINS AND QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spiked Concentration	Analyzed Concentration	Recovery (percent)
40021-002 Locality monitor blank MW-101-002101 Matrix Spike	<0.00 mgL 0.22 mgL 0.46 mgL 0.46 mgL	0.00 mgL 0.22 mgL 0.46 mgL	0.00 mgL 0.21 mgL 0.46 mgL	92.0 91.8 91.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Detection
G001-002-214CH_0002211 Laboratory Negate Blank	<0.01 mgL	Acceptable

Comments:

Calculations performed prior to rounding:
Laboratory Control Range (Relative) (R = 100%)
Matrix Spike Recovery (S = 100%)
Relative Range Recovery (C = 100%)

Comments:

All results reference US EPA methods unless otherwise noted.
re = replicate not available for replicate.

Sample analyzed outside pH range.

Mr. Greg Trantell
P&I Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

Mr. Greg Trantell
P&I Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: P&I Corporation
Report Date: 10/4/21
ATSDR#: 0002211

Sample Identification: G001-002

Sample Date: 10/21
Sample Time: re
Sampled By: Choi
Laboratory Analyst/Coll: 00/01
Sample Matrix: Water

Parameter: Method: Units: Result: Reporting Limit: Analyze Date: Analysis Time: Analyzed By:
1,4-Dioxane US EPA 1624 mg/L 0.007 0.001 10/21 14:46 SLD

Mr. Greg Trantell
P&I Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

Mr. Greg Trantell
P&I Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATS Project: P&I Corporation
Report Date: 10/4/21
ATSDR#: 0002211

Sample Identification: PSCOC-1A

Sample Date: 10/21
Sample Time: re
Sampled By: Choi
Laboratory Receipt Date: 00/01
Sample Matrix: Water

Parameter: Method: Units: Result: Reporting Limit: Analyze Date: Analysis Time: Analyzed By:
Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.005 0.001 10/21 14:57 SLD

G001-002-214CH_0002211.sdc

10/4/21

CHAIN OF CUSTODY RECORD

Date	Specimen ID	Specimen Description	Specimen Type	Specimen Status	Specimen Location	Specimen Condition	Specimen Status	Specimen Location	Specimen Condition
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	1	Received	Accepted	1	Received
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	2	Accepted	Accepted	2	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	3	Accepted	Accepted	3	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	4	Accepted	Accepted	4	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	5	Accepted	Accepted	5	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	6	Accepted	Accepted	6	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	7	Accepted	Accepted	7	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	8	Accepted	Accepted	8	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	9	Accepted	Accepted	9	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	10	Accepted	Accepted	10	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	11	Accepted	Accepted	11	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	12	Accepted	Accepted	12	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	13	Accepted	Accepted	13	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	14	Accepted	Accepted	14	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	15	Accepted	Accepted	15	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	16	Accepted	Accepted	16	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	17	Accepted	Accepted	17	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	18	Accepted	Accepted	18	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	19	Accepted	Accepted	19	Accepted
10/21/21	G001-002-214CH_0002211	Laboratory Negate Blank	Water	Accepted	20	Accepted	Accepted	20	Accepted

Data Review and Approval

All data contained in this report have been generated in accordance with procedures provided in the referenced Standard Test Method, and are consistent with detailed procedures described in the data quality assurance procedures (DQAP) specific to the ATS Laboratory, as required by USEPA. All data used for measurement review to ensure compliance with the above referenced SDP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manual.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LR), specified blanks (BS, LR, LC), matrix spikes (MS, SVK), and duplicates which spiked or native (MSD, SVK, DUT, DLR, LR).

Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/985-0665 Fax 734/985-3751

Data Traceability

This data package contains a Level II package; other data report packages (Level I, Level IV QCP, EPA R3 SDD) are available upon request. There were no laboratory data summary sheets generated for this project.

Sample Analysis

Laboratory Analysis (QA/QC): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 264 (Volatile Organic Compounds by Ion Trap Gas Chromatography - Mass Spectrometry). An internal standard with a linear trend was used for quantitation 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Analytical Notes

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a total-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exception:

- None

Instrument Blank

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exception:

- None

QA/QC Batch Summary

Internal Standards

Internal standards were at relative times met the acceptance criteria with the following exception:

- None

Laboratory Recovery Blanks

A laboratory recovery blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exception:

- None

QH01-00211-CH_00021.docx



QH01-00211-CH_00021.docx



Mark DeLong

(October 4, 2021)

Mark T. DeLong (Quality Assurance Coordinator)

Philip H. Stover

(October 4, 2021)

Philip H. Stover (Laboratory Director)

QH01-00211-CH_00021.docx



Organic Analysis Data Summary Sheet

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

Sample Identification: CB-OC-2A
Sample Date: 09/01
Sample Time: 7:40 AM
Sample By: Client
Sample Received Date: 09/01
Sample Matrix: Water

Instrument Analysis:
Method: US EPA 1624
Units: mg/L
Result: 0.007
Reporting Limit: 0.001
Analysis Date: 09/01
Analysis Time: 13:13
Analyst: ELS

Organic Analysis Data Summary Sheet
QH01-00211-CH_00021.docx

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

REPLICATE ANALYSIS					
Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)	
QH01-00211-CH_00021 1,4-Dioxane	0.011 mg/L	0.011 mg/L	0.011 mg/L	3.5	

SPKES AND QC CHECK SAMPLES					
Sample/Analysis	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)	
QH01-00211-CH_00021 1,4-Dioxane	0.001 mg/L	0.010 mg/L	0.010 mg/L	100.0	
QH01-00211-CH_00021 1,4-Dioxane	0.001 mg/L	0.010 mg/L	0.011 mg/L	110.0	
QH01-00211-CH_00021 1,4-Dioxane	0.001 mg/L	0.010 mg/L	0.011 mg/L	110.0	

BLANK ANALYSIS					
Sample	Analyzed Concentration	QC Decision			
QH01-00211-CH_00021 Laboratory Reagent Blank	<0.001 mg/L	Acceptable			

Comments:
Control limits:
Recovery:
Laboratory Control Sample Recovery (95-110%)
Client Sample Recovery (90-120%)
Notes:
Recovery > 100%
Recovery < 90%

All methods reference US EPA methods unless otherwise noted.
as = indicates not available / applicable.

Sample analyzed as native ppt.

QH01-00211-CH_00021 1,4-Dioxane

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

Organic Analysis Data Summary Sheet
QH01-00211-CH_00021 1,4-Dioxane

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

Sample Identification: CB-OC-2A

Sample Date: 09/01
Sample Time: 7:40 AM
Sampled By: Client
Laboratory Receipt Date: 09/01
Sample Matrix: Water

Parameter: Organic Analysis
Method: US-EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/01
Analysis Time: 11:45
Analyst: ELS

QH01-00211-CH_00021 1,4-Dioxane

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

Organic Analysis Data Summary Sheet
QH01-00211-CH_00021 1,4-Dioxane

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

Sample Identification: CB-OC-2A

Sample Date: 09/01
Sample Time: 7:40 AM
Sampled By: Client
Laboratory Receipt Date: 09/01
Sample Matrix: Water

Parameter: Organic Analysis
Method: US-EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/01
Analysis Time: 12:29
Analyst: ELS

Organic Analysis Data Summary Sheet

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

Organic Analysis Data Summary Sheet
QH01-00211-CH_00021 1,4-Dioxane

ATL Project: Pub Corporation 00021-002
Report Date: 10/04/21
ATL SRF: 000211

Sample Identification: CB-OC-2A

Sample Date: 09/01
Sample Time: 7:40 AM
Sampled By: Client
Laboratory Receipt Date: 09/01
Sample Matrix: Water

Parameter: Organic Analysis
Method: US-EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/01
Analysis Time: 12:29
Analyst: ELS

X10041-00211-CH_00021 1,4-Dioxane

QH01-00211-CH_00021 1,4-Dioxane

ver 10A

X10041-00211-CH_00021 1,4-Dioxane

QH01-00211-CH_00021 1,4-Dioxane

ver 10A

Consultant in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734.995.0905 Fax 734.995.3731



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 10/4/21
SRP / SDG Number(s): 0908211
Client PO Number: 4504859621

Cust Narrative Summary

This case narrative applies to the following three samples that were received at Ate-Archer Technical Services, Inc. (ATS) on 9/9/21, and associated project-specific QA/QC.

Sample

Client Sample Identification	Sample Date	Received Date/Time	Analyzed By	Matrix
ATSP-1021	9/9/21	9/9/21	SLB	Water
ATSP-1021A	9/9/21	9/9/21	SLB	Water
ATSP-1021B	9/9/21	9/9/21	SLB	Water
ATSP-1021C	9/9/21	9/9/21	SLB	Water

Upon receipt samples were scheduled for the following analyses:

- Dilution
- Number of Samples
- 1,4-Dioxane (DNPFA 1024) - Diluted TAT
- 3 samples

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pohl Corporation staff. Samples were received with proper chain of custody records included. Sample condition and stability, if any, are either presented in the "Sample Report" section of this report or in the documentation on individual data clients. All samples were prepared and analyzed within 6 days of the following exception:

* None

Data Review and Approval

All data entered to this report were reviewed by management via guidelines provided in the referenced laboratory quality assurance manual with detailed procedures described in a written standard operating procedure (SOP) specific to the ATS laboratory, as required by US EPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data undergoes the laboratory's Quality Assurance / Quality Control Manual.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MD, LBL), fortified blanks (BL, LBL), LCS, matrix spikes (MS, SPK), and duplicates whether spike is active (MSD, SPK, DPL, DUT, LBL, DAB-Q1024P, Q1024L).

Corporate Office of Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

Data Diagnostics

This data package constitutes a Level II package under data-report packages (Level I, Level IV OWP, EPA HS EDD) and available upon request. There were no back-up data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (Q1024): Samples were analyzed by purge and trap GC/MS in accordance with US EPA method 1024 (Volatiles Organic Compounds by Simple Dilution Gas Chromatography - Mass Spectrometry). An internal standard with at least five times the concentration of 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Analyzed By:

- * SLB

Analytical OQ/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a multi-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exception:

- * None

Instrument Blanks

Low system background was demonstrated through the analysis of ten instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exception:

- * None

QA/QC Batch Summary

Internal Standards

Internal standards were and robotics client met the acceptance criteria with the following exception:

- * None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exception:

- * None

Laboratory Certified Blanks / Laboratory Control Samples

A laboratory certified blank (LCB) was analyzed with each QA/QC batch. The LCB's met the acceptance criteria with the following exception:

- * None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exception:

- * None

Matrix Replicates

A matrix spike (MS) and matrix spike replicates (MSR) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exception:

- * None

Sample Filtration

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- * None

Mark Oldsby

October 4, 2021

Mark T. DeLoach (Quality Assurance Coordinator)

Philip S. Simon

October 4, 2021

Philip S. Simon (Laboratory Director)

Organic Analysis Data Summary Sheet

ATS Project: Pohl Corporation Report Date: 10/4/21
ATS SRF: 0908211

Sample Identification: 090821

Sample Date: 09/9/21 Sample Time: 7:25 AM Sampled By: Client Laboratory Report Date: 09/9/21 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis	US EPA 1024	mg/L	0.000	0.001	08/01	11:17	SLB

Organic Analysis Data Summary Sheet

ATS Project: Pohl Corporation Report Date: 10/4/21
ATS SRF: 0908211

Sample Identification: ATSP-1021

Sample Date: 09/9/21 Sample Time: 7:25 AM Sampled By: Client Laboratory Report Date: 09/9/21 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis	US EPA 1024	mg/L	0.000	0.001	08/01	12:31	SLB

Organic Analysis Data Summary Sheet

ATS Project: Pohl Corporation Report Date: 10/4/21
ATS SRF: 0908211

Sample Identification: ATSP-1021A

Sample Date: 09/9/21 Sample Time: 7:25 AM Sampled By: Client Laboratory Report Date: 09/9/21 Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis	US EPA 1024	mg/L	0.000	0.001	08/01	12:40	SLB

Quality Assurance / Quality Control Data Summary

QC Batch Number: C0202102104
Parameter: 1,4-Dioxane (EPA 1024)

ATS Project: Pohl Corporation Report Date: 10/4/21

REPLICATES ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
090821-002 ATSP Tap Water 09/21 Matrix Spike	0.000 mg/L	0.000 mg/L	0.000 mg/L	4.0

SPKES AND QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
090821-002 Labeled Tethered Blank ATSP Tap Water 09/21 Matrix Spike	10.00 mg/L	0.010 mg/L	0.010 mg/L	100.0
ATSP Tap Water 09/21 Matrix Spike Duplicate	10.00 mg/L	0.009 mg/L	0.009 mg/L	99.0
	10.00 mg/L	0.009 mg/L	0.009 mg/L	99.0

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
090821-002 Laboratory Reagent Blank	0.001 mg/L	Acceptable

Comments:

Calibration performed prior to running.

Recovery: Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (>20%)

Data Summary Sheet		Organic Analytical Sheet	
Sample ID:	100-0001	Test Concentration:	5000 ppm
ATC Project:	RPT-001	Report Date:	5/20/2023
ATC Spec:	Spec-A	Spec ID:	100-0001
Sample Description:	100g of soil sample from a contaminated site.		
Sample Date:	5/20/2023	Sample Type:	Soil
Sample Origin:	Site A	Sample Subtype:	Homogeneous
Sample Preparation:	Soil was air-dried and ground into a fine powder.		
Instrumentation:	Varian 300 NMR spectrometer, Bruker QX GC-MS, Agilent 7890A GC.		
Repeating Unit:	ppm	Analysis Unit:	ppm
Sample Unit:	g	Sample Size:	100 g
Sample Weight:	100 g	Sample Volume:	100 mL
Sample Temperature:	25°C	Sample pH:	7.2
Sample Color:	Light brown	Sample Consistency:	Homogeneous
Sample Smell:	Earthy	Sample Odor:	Negligible
Sample Texture:	Fine powder	Sample Density:	1.5 g/mL
Sample Specific Gravity:	1.5 g/mL	Sample Viscosity:	1.5 cP
Sample Hardness:	Very soft	Sample Flammability:	Non-flammable
Sample Explosiveness:	Non-explosive	Sample Corrosivity:	Non-corrosive
Sample Irritancy:	Non-irritant	Sample Photo:	Attached
Sample Safety Alert:	None		
Sample Health Alert:	None		
Sample Environmental Alert:	None		
Sample Legal Alert:	None		
Sample Other Alert:	None		

Commentaires Les méthodes de l'EDA sont très intéressantes et utiles.

Commentaire *Nous trouvons nécessaire de faire évoluer notre législation pour que les personnes atteintes d'handicap puissent exercer leur droit à l'autonomie dans la mesure du possible.*

Data Summary Sheet	
Project Name:	AT&T Project
Project Description:	New Network Deployment AT&T 4G
Project Status:	Planning
Sample Identification:	Site 001
Sample Location:	123 Main St. Anytown, USA
Sample Type:	Core Switch Router Wireless Node Power Supply Antenna
Sample Status:	Received Not Tested Tested Rejected Accepted
Starting Date:	2024-01-01
Ending Date:	2024-01-01
Analyst 1:	John Doe
Analyst 2:	Jane Smith
Analyst 3:	Bob Johnson
Analyst 4:	Sarah Williams
Analyst 5:	Mike Brown
Analyst 6:	Alice Green
Analyst 7:	David White
Analyst 8:	Emily Black
Analyst 9:	Frank White
Analyst 10:	Grace Black

Comments
An increase in the DNA repair rate inhibits tumorigenesis.

Contents
An introduction to the study of Indian religions

ANS	Sample Identification:	Date:
Mr. Greg Treadie	Sample Disc:	SDP
Phil Corporation	Sample Time:	8:30 AM
602 East Washington	Sample By:	Craig
Ain Arbor, MI 48103	Laboratory/Certified By:	SJCT
	Sample Disc'd:	Walker
	Print Name:	
	Original Signature:	

Comments

Organic Analysis Data Summary Sheet	
Sample ID: 1234567890	
Sample Description:	Kern City Hospital Mr. Clark Townsend 45-1234567890 45-1234567890
Sample Type:	Whole Blood
Sample Date:	2023-09-15
ATL Date:	2023-09-15
ATL Status:	Completed
ATL Date:	2023-09-15
ATL Status:	Completed
Sample ID:	1234567890
Sample Type:	Whole Blood
Sample Date:	2023-09-15
ATL Date:	2023-09-15
ATL Status:	Completed

... und die entsprechenden Reaktionen der Zellen auf diese Störung. Die Zellen reagieren auf die Störung mit einer Zellzyklus-Regulation, die zu einer Verzögerung des Zellzyklus führt. Dieser Prozess wird als Apoptose bezeichnet.

Data Summary Sheet									
Project Information		System Configuration		Performance Metrics		Resource Utilization		Cost Summary	
Project ID:	Project Name:	DB Type:	Processor Model:	Throughput (ops/s):	Memory (GB):	Latency (ms):	Bandwidth (Mbps):	Total Cost (\$):	Cost per op (\$):
PROJ-001	Cloud Migration	MySQL	Intel Core i9-13900K	1200	64	10	1000	12000	0.01
PROJ-002	Data Analytics	Oracle Database	NVIDIA RTX 4090	1500	128	8	1200	18000	0.012
PROJ-003	Machine Learning	MongoDB	AMD Ryzen 9 7950X	1800	32	12	1500	25000	0.015
PROJ-004	Blockchain	Redis	ASUS ROG Strix G17	2000	16	15	1800	30000	0.02
PROJ-005	Cloud Storage	S3	MSI GE76 Raider	2200	32	18	2000	35000	0.025
PROJ-006	Big Data Processing	HDFS	Dell XPS 15 9500	2500	64	20	2200	40000	0.03
PROJ-007	AI Model Training	TensorFlow	Lenovo Legion 5 Pro	3000	128	25	2500	45000	0.04
PROJ-008	Real-time Analytics	Apache Flink	ASUS TUF Gaming A15	3500	64	30	2800	50000	0.05
PROJ-009	Cloud Monitoring	CloudWatch Metrics	MSI GE76 Raider	4000	128	35	3000	55000	0.06
PROJ-0010	Container Orchestration	Kubernetes	MSI GE76 Raider	4500	128	40	3200	60000	0.07

Comments:
A significant performance bottleneck was observed in Project PROJ-003 due to memory constraints.

Notes:
No critical errors or anomalies were detected across all projects.

Signatures:
John Doe, Project Manager, PROJ-001
Jane Smith, Project Manager, PROJ-002

Organic Analysis Data Summary Sheet	
Sample ID:	100-0000000000
Sample Description:	Water sample from Lake Michigan at Chicago, IL
Sample Date:	2023-05-15
Analyst:	Jane Doe, Lab Manager
Instrument:	Varian 300 NMR
Chromatography:	Agilent 6890 GC
MS:	Thermo Fisher QP2020
Comments:	Sample was received in a clear plastic bottle. No sediment or debris present.
Sample Identification:	100-0000000000
Sample Date:	2023-05-15
Analyst:	Jane Doe, Lab Manager
Instrument:	Varian 300 NMR
Chromatography:	Agilent 6890 GC
MS:	Thermo Fisher QP2020
Comments:	Sample was received in a clear plastic bottle. No sediment or debris present.

<p>Mr. & Mrs. George Treadie Phil Cooley 942 South Highland Road Ann Arbor, MI 48103</p> <p>Emergency Identification:</p> <table border="0"> <tr> <td>First Name: George</td><td>Last Name: Treadie</td></tr> <tr> <td>Suffix: Jr.</td><td>Date of Birth: 10/24/1934</td></tr> <tr> <td>Sex: M</td><td>Color: Chestnut</td></tr> <tr> <td>Marital Status: Married</td><td>Height: 5'10"</td></tr> <tr> <td>Employment: Retired</td><td>Weight: 175 lbs</td></tr> <tr> <td>Residence: 942 South Highland Road</td><td>Eye Color: Blue</td></tr> <tr> <td>Relationship to Victim: Spouse</td><td>Hair Color: Gray</td></tr> <tr> <td>Other: None</td><td>Complexion: Light</td></tr> </table> <p>Relationship: Original Author: DPW Last Change: 5-1-2004</p>	First Name: George	Last Name: Treadie	Suffix: Jr.	Date of Birth: 10/24/1934	Sex: M	Color: Chestnut	Marital Status: Married	Height: 5'10"	Employment: Retired	Weight: 175 lbs	Residence: 942 South Highland Road	Eye Color: Blue	Relationship to Victim: Spouse	Hair Color: Gray	Other: None	Complexion: Light		<p>103</p>
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Relationship to Victim: Spouse	Hair Color: Gray																	
Other: None	Complexion: Light																	

Al mediodia salieron de EPA mientras estaba ofrendando misa.

All methods reference US EPA methods unless otherwise noted.

Uji modelu fitnesse dan EFA metode u analisis faktor

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**Organic Analysis
Data Summary Sheet**

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 652 South Wagner

Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Drinking Water

Method: US EPA 1624
Units: mg/L
Result: >0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 2:34
Analyst: SLS

642 South Wagner Road
Ann Arbor, MI 48103
Pfaltz Corporation
Environmental Test Laboratory & Research

**Organic Analysis
Data Summary Sheet**

ATD Project: 652 South Wagner
Report Date: 6/21
ATD S/N: 00001-001

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 652 South Wagner

Sample Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Drinking Water

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: >0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 2:34
Analyst: SLS

642 South Wagner Road
Ann Arbor, MI 48103
Pfaltz Corporation
Environmental Test Laboratory & Research

**Organic Analysis
Data Summary Sheet**

ATD Project: 652 South Wagner
Report Date: 6/21
ATD S/N: 00001-002

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 652 South Wagner

Sample Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Drinking Water

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: >0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 2:34
Analyst: SLS

642 South Wagner Road
Ann Arbor, MI 48103
Pfaltz Corporation
Environmental Test Laboratory & Research

**Organic Analysis
Data Summary Sheet**

ATD Project: 652 South Wagner
Report Date: 6/21
ATD S/N: 00001-002

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 652 South Wagner

Sample Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Drinking Water

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: >0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 2:34
Analyst: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Not available / Not applicable.

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na = Not available / Not applicable.

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All methods reference US EPA methods unless otherwise noted.
na = Not available / Not applicable.

File Number: 652 South Wagner, MI_00001

**Organic Analysis
Data Summary Sheet**

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: MW-25

Sample Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Water

Method: US EPA 1624
Units: mg/L
Result: <0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 6:29
Analyst: SLS

642 South Wagner Road
Ann Arbor, MI 48103
Pfaltz Corporation
Environmental Test Laboratory & Research

**Organic Analysis
Data Summary Sheet**

ATD Project: 652 South Wagner
Report Date: 6/21
ATD S/N: 00001-002

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: MW-25

Sample Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: <0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 6:29
Analyst: SLS

642 South Wagner Road
Ann Arbor, MI 48103
Pfaltz Corporation
Environmental Test Laboratory & Research

**Organic Analysis
Data Summary Sheet**

ATD Project: 652 South Wagner
Report Date: 6/21
ATD S/N: 00001-002

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: MW-25

Sample Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: <0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 6:29
Analyst: SLS

642 South Wagner Road
Ann Arbor, MI 48103
Pfaltz Corporation
Environmental Test Laboratory & Research

**Organic Analysis
Data Summary Sheet**

ATD Project: 652 South Wagner
Report Date: 6/21
ATD S/N: 00001-002

For Mr. Greg Trindl
Pfaltz Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: MW-25

Sample Date: 6/21
Sample Time: 11:45 AM
Submitted By: Client
Laboratory Receipt Date: 6/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: <0.01
Reporting Limit: 0.001
Analysis Date: 6/21
Analysis Time: 6:29
Analyst: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Not available / Not applicable.

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All methods reference US EPA methods unless otherwise noted.
na = Not available / Not applicable.

File Number: 652 South Wagner, MI_00001

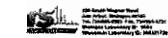
642 South Wagner Road
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Ann Arbor, MI 48103
Pfaltz Corporation
Environmental Test Laboratory & Research



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Organic Analysis Data Summary Sheet

Mr. George Tresel	AT&T Project	Pat Corporation	Report Date:	10/02/01
Pt Corporation	Report Date:	10/02/01	AT&T SRF:	0000211
5422 South Wagner Road				
Ann Arbor, MI 48103				

Sample Identification: MNL-201

Sample Date: 09/21
Sample Time: 12:50 PM
Sampled By: Clerk
Laboratory Report Date: 09/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By

Analysis 1,0-Dioxane US EPA 1624 mg/L 0.00 0.01 09/02 11:00 SLA

All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.

Comments
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Organic Analysis Data Summary Sheet

Mr. George Tresel	AT&T Project	Pat Corporation	Report Date:	10/02/002
Pt Corporation	Report Date:	10/02/002	AT&T SRF:	0000211
5422 South Wagner Road				
Ann Arbor, MI 48103				

Sample Identification: MNL-124

Sample Date: 09/21
Sample Time: 11:00 AM
Sampled By: Clerk
Laboratory Report Date: 09/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By

Analysis 1,0-Dioxane US EPA 1624 mg/L 0.00 0.01 09/02 11:10 SLA

All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Organic Analysis Data Summary Sheet

Mr. George Tresel	AT&T Project	Pat Corporation	Report Date:	10/02/002
Pt Corporation	Report Date:	10/02/002	AT&T SRF:	0000211
5422 South Wagner Road				
Ann Arbor, MI 48103				

Sample Identification: MNL-125

Sample Date: 09/21
Sample Time: 10:11 AM
Sampled By: Clerk
Laboratory Report Date: 09/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By

Analysis 1,0-Dioxane US EPA 1624 mg/L 0.00 0.01 09/02 11:25 SLA

All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Organic Analysis Data Summary Sheet

Mr. George Tresel	AT&T Project	Pat Corporation	Report Date:	10/02/002
Pt Corporation	Report Date:	10/02/002	AT&T SRF:	0000211
5422 South Wagner Road				
Ann Arbor, MI 48103				

Sample Identification: MNL-126

Sample Date: 09/21
Sample Time: 09:44 AM
Sampled By: Clerk
Laboratory Report Date: 09/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By

Analysis 1,0-Dioxane US EPA 1624 mg/L 0.00 0.01 09/02 11:40 SLA

All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.

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Rev. 10/02/01

XXXXXXXXXXXXXX_MNL_0001

Rev. 10/02/01

Rev. 10/02/01

XXXXXXXXXXXXXX_MNL_0001

Rev. 10/02/01

XXXXXXXXXXXXXX_MNL_0001

Organic Analysis Data Summary Sheet

Mr. George Tresel	AT&T Project	Pat Corporation	Report Date:	10/02/002
Pt Corporation	Report Date:	10/02/002	AT&T SRF:	0000211
5422 South Wagner Road				
Ann Arbor, MI 48103				

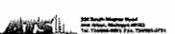
Sample Identification: MNL-202

Sample Date: 09/21
Sample Time: n/a
Sampled By: Clerk
Laboratory Report Date: 09/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By

Analysis 1,0-Dioxane US EPA 1624 mg/L 0.00 0.01 09/02 10:32 SLA

All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Organic Analysis Data Summary Sheet

Mr. George Tresel	AT&T Project	Pat Corporation	Report Date:	10/02/002
Pt Corporation	Report Date:	10/02/002	AT&T SRF:	0000211
5422 South Wagner Road				
Ann Arbor, MI 48103				

Sample Identification: EP-OC-2A

Sample Date: 09/21
Sample Time: 8:00 AM
Sampled By: Clerk
Laboratory Report Date: 09/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By

Analysis 1,0-Dioxane US EPA 1624 mg/L 0.00 0.01 09/02 11:15 QCL

All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Organic Analysis Data Summary Sheet

Mr. George Tresel	AT&T Project	Pat Corporation	Report Date:	10/02/002
Pt Corporation	Report Date:	10/02/002	AT&T SRF:	0000211
5422 South Wagner Road				
Ann Arbor, MI 48103				

Sample Identification: EP-OC-2A

Sample Date: 09/21
Sample Time: 8:00 AM
Sampled By: Clerk
Laboratory Report Date: 09/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By

Analysis 1,0-Dioxane US EPA 1624 mg/L 0.00 0.01 09/02 11:20 SLA

All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.



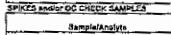
55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Quality Assurance / Quality Control Data Summary

QD Batch Number: 0000211	AT&T Project: Pat Corporation	Report Date: 10/02/01
Parameter: 1,0-Dioxane 1624 (QCL)		

Results of QA Samples run concurrently with project samples

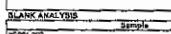
Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
QD021-002 AT&T Water 1624 Water Spike	0.001 mg/L	0.001 mg/L	0.001 mg/L	±1



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

SPikes and QC Check Samples

Sample/Analyte	Known Concentration	Spiked Concentration	Analyzed Concentration	Recovery (%)
QD021-002 Liquor/Fortified Blank AT&T Tap Water 1624 (QCL)	≤0.01 mg/L	0.010 mg/L 0.011 mg/L ≤0.01 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	±0.1 ±0.1 ±0.0



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

BLANK ANALYSIS

Sample/Analyte	Analyzed Concentration	QC Deviations
QD021-002 Liquor/Fortified Blank AT&T Tap Water 1624 (QCL)	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to reporting.



55 South Wagner Road
Ann Arbor, MI 48103
Tel: (800) 541-1000 Fax: (313) 761-5070
Westcott Laboratory ID: 0000102

Control Limits:
Laboratory Control Sample Recovery (QCL): 110%
Recovery Range: Recovery (QCL): ±10%

XXXXXXXXXXXXXX_MNL_0001

Rev. 10/02/01

XXXXXXXXXXXXXX_MNL_0001

Rev. 10/02/01

Rev. 10/02/01

XXXXXXXXXXXXXX_MNL_0001



**Organic Analysis
Data Summary Sheet**

For Mr. Gage Treadel
Pd Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 10/14/21
ATS Project: Pd Corporation
ATS SRN: 0913211

MI South Wagner Road
642 South Wagner Road, Suite 100
Ann Arbor, MI 48103
Unocal Laboratory ID: 00001-000

**Organic Analysis
Data Summary Sheet**

For Mr. Gage Treadel
Pd Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 10/14/21
ATS Project: Pd Corporation
ATS SRN: 0913211

MI South Wagner Road
642 South Wagner Road, Suite 100
Ann Arbor, MI 48103
Unocal Laboratory ID: 00001-000

**Organic Analysis
Data Summary Sheet**

For Mr. Gage Treadel
Pd Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 10/14/21
ATS Project: Pd Corporation
ATS SRN: 0913211

MI South Wagner Road
642 South Wagner Road, Suite 100
Ann Arbor, MI 48103
Unocal Laboratory ID: 00001-000

**Organic Analysis
Data Summary Sheet**

For Mr. Gage Treadel
Pd Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 10/14/21
ATS Project: Pd Corporation
ATS SRN: 0913211

Sample Identification: 091321

Sample Date: 09/13/21
Sample Time: no
Sampled By: Client
Laboratory Receipt Date: 09/13/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analyzed Time Analyzed By

Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.000 0.001 10/14/21 16:03 GLD

Sample Identification: 091321

Sample Date: 09/13/21
Sample Time: 7:15 AM
Sampled By: Client
Laboratory Receipt Date: 09/13/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analyzed Time Analyzed By

Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.000 0.001 10/14/21 16:07 GLD

Sample Identification: 091321A

Sample Date: 09/13/21
Sample Time: 7:28 AM
Sampled By: Client
Laboratory Receipt Date: 09/13/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analyzed Time Analyzed By

Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.000 0.001 10/14/21 17:31 GLD

Sample Identification: 091321A

Sample Date: 09/13/21
Sample Time: 7:28 AM
Sampled By: Client
Laboratory Receipt Date: 09/13/21
Sample Matrix: Water

Parameter Method Units Result Reporting Limit Analysis Date Analyzed Time Analyzed By

Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.000 0.001 10/14/21 16:16 GLD

Comments:
All methods reference US EPA methods unless otherwise noted.
no = indicates not available / applicable.
Sample analyzed at native p.p.

Comments:
All methods reference US EPA methods unless otherwise noted.
no = indicates not available / applicable.
Sample analyzed at native p.p.

Comments:
All methods reference US EPA methods unless otherwise noted.
no = indicates not available / applicable.
Sample analyzed at native p.p.

Comments:
All methods reference US EPA methods unless otherwise noted.
no = indicates not available / applicable.
Sample analyzed at native p.p.

10/14/2021 10:00 AM (EST) 091321

10:00 AM

10/14/2021 091321

10:00 AM

10/14/2021 091321

10:00 AM

10/14/2021 091321

10:00 AM

MI South Wagner Road
642 South Wagner Road, Suite 100
Unocal Laboratory ID: 00001-000

**Organic Analysis
Data Summary Sheet**

For Mr. Gage Treadel
Pd Corporation
Report Date: 10/14/21
ATS SRN: 0913211

MI South Wagner Road
642 South Wagner Road, Suite 100
Unocal Laboratory ID: 00001-000

**Organic Analysis
Data Summary Sheet**

For Mr. Gage Treadel
Pd Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 10/14/21
ATS SRN: 0913211

MI South Wagner Road
642 South Wagner Road, Suite 100
Unocal Laboratory ID: 00001-000

**Quality Assurance / Quality Control
Data Summary**

QC Batch Number: QCDR0010913211
Parameter: 1,4-Dioxane (CPA 1624)
Report Date: 10/14/21

ATS Project: Pd Corporation
ATS SRN: 0913211

Results of QA Samples run concurrently with project samples.

REPLICATE ANALYSIS	Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
QCDR0010913211 ATS Tap Water 09/13/21 Matrix Blank	0.000 mg/L	0.000 mg/L	0.000 mg/L	17.1	

SPIKES and QC CHECK SAMPLES	Sample/Analyte	Known Concentration	QC Concentration	Analyzed Concentration	Recovery (percent)
QCDR0010913211 Liquorice Extract Matrix ATS Tap Water 09/13/21 Matrix Spike ATS Tap Water 09/13/21 Matrix Spike Duplicate	<0.001 mg/L <0.001 mg/L <0.001 mg/L	0.000 mg/L 0.010 mg/L 0.010 mg/L	0.000 mg/L 0.000 mg/L 0.010 mg/L	0.000 mg/L 0.000 mg/L 0.010 mg/L	10.0 10.0 100.0

BLANK ANALYSIS	Sample	Analyzed Concentration	QC Replicate
QCDR0010913211 Laboratory Reagent Blank	<0.001 mg/L		Ammended

Comments:
Calibration performed prior to analysis.

Control Limits:
Recovery: 100% (Total Sample Recovery = 99.1%)
Matrix Spike Recovery (90 - 120%)
Relative Range: (Recovery - 100%)

CUSTODY RECORD		CUSTODY RECORD		CUSTODY RECORD		CUSTODY RECORD		CUSTODY RECORD		CUSTODY RECORD	
1	1	2	2	3	3	4	4	5	5	6	6
7	7	8	8	9	9	10	10	11	11	12	12
13	13	14	14	15	15	16	16	17	17	18	18
19	19	20	20	21	21	22	22	23	23	24	24
25	25	26	26	27	27	28	28	29	29	30	30
31	31	32	32	33	33	34	34	35	35	36	36
37	37	38	38	39	39	40	40	41	41	42	42
43	43	44	44	45	45	46	46	47	47	48	48
49	49	50	50	51	51	52	52	53	53	54	54
55	55	56	56	57	57	58	58	59	59	60	60
61	61	62	62	63	63	64	64	65	65	66	66
67	67	68	68	69	69	70	70	71	71	72	72
73	73	74	74	75	75	76	76	77	77	78	78
79	79	80	80	81	81	82	82	83	83	84	84
85	85	86	86	87	87	88	88	89	89	90	90
91	91	92	92	93	93	94	94	95	95	96	96
97	97	98	98	99	99	100	100	101	101	102	102

Comments:
All methods reference US EPA methods unless otherwise noted.
no = indicates not available / applicable.
Sample analyzed at native p.p.

Comments:
All methods reference US EPA methods unless otherwise noted.
no = indicates not available / applicable.
Sample analyzed at native p.p.

10/14/2021 10:00 AM (EST) 091321

10:00 AM

10/14/2021 091321

10:00 AM

10/14/2021 091321

10:00 AM

10/14/2021 091321

10:00 AM



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 10/4/21
SRF / SDG Number(s): 0917211
Client PO Number: 4504859621

Case Narratives Summary

This case narrative applies to the following thirty-eight samples that were received at Ann Arbor Technical Services, Inc. (ATSI) on 9/17/21, and associated matrix-specific QA/QC:

三

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-4995 Fax 734/995-37

200 South Michigan Street
Ann Arbor, Michigan 48103
Tel: 734-994-3622 Fax: 734-994-3724
Michigan Library 100-3000
Whitemore Laboratory Dr. 300-11238

**Organic Analysis
Data Summary Sheet**

TS Project: Full Corporation 40001-652
Report Date: 10/4/21
AFS GRF: 0017211

ANIMAL
WILDLIFE
SOCIETY

ANIMAL
WILDLIFE
SOCIETY

ANIMAL
WILDLIFE
SOCIETY

ANIMAL
WILDLIFE
SOCIETY

Organic Analytical
Data Summary Sheet

For: Mr. George Trendel
Pelli Corporation

ATD Project: Pelli Corporation
Report Date: 1/16/2011

FIM Youth Wagon Show
Ann Arbor, Michigan 48103
Tel. (313) 964-9463 Fax. 734-
975-0000 E-mail: Wagon@juno.com

Organic Analysis

130 South Worcester Street
New Haven, Connecticut 06513

**Organic Analysis
Data Summary Sheet**

Transfer		ATD Project:	Pat Corporation	4201-630	
		Report Date:	10/27/11		
		ATD SRF:	2011211		
Sample Identification:	Pat-2	Sample Identification:	Pat-2		
Lab:	01021	Sample Date:	10/27/11		
Time:	9:46 AM	Sample By:	ATD		
Class:		Sampled By:	Cient		
Qty:		Laboratory Record Date:	10/27/11		
Range Dates:	5/1/2011	Sample Matrix:	Water		
Matrix:	Water				
Method:	US EPA 204	Units:	mg/L	Reporting Limit:	0.1
				Analysis Date:	10/27/11
				Analysis Time:	2:22
				Analyzed By:	

Mr. George Tschirhart		ATD Patient	Det. Companion	P0021-Short
Plut Corporation		Report Date	10/24/1	
542 South Wagner Road		ATD SNF:	0617211	
Anaheim, CA 92802				
<hr/>				
Sample Identification: NM4-02				
Sample Date:	9/12/01			
Sample Time:	5:20 AM			
Sampled By:	Chest			
Laboratory Result Date:	9/17/01			
Comments:	WNL			
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Pathologist	Method	Units	Result	Reporting Limit
				Analysis Date
				Analysis Time
				Analyst By

Per Ms. Gage Transel		14770-100-0001		Organic Analysis Data Summary Sheet	
P&G Corporation		12/24/01		2001-002	
342 Union Wagner Road		ATD SRC:			
Akron, OH 44325		Reorder Date:		12/24/01	
		ATD SRC#:		2001-002	
<hr/>					
Sample Identification: NAM-26					
Sample Date:	01/20/01				
Sample Time:	8:00 AM				
Sampling By:	Caren				
Laboratory Request Date:	01/17/01				
Sample Matrix:	Water				
	Analysis		Analysis		Analysis

Comments:

Сентябрь 2018



**Organic Analysis
Data Summary Sheet**

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATD Project: Pell Corporation
Report Date: 05/17/21
ATD S/N: 0517211

Sample Identification: NMW-1d
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
US-EPA-1624	mgl.	L	0.04	02/01	14:46	02:00	

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

**Organic Analysis
Data Summary Sheet**

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATD Project: Pell Corporation
Report Date: 05/17/21
ATD S/N: 0517211

Sample Identification: NMW-3
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US-EPA-1624	mgl.	0.13	02/01	05/22/21	23:41	n/a

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

**Organic Analysis
Data Summary Sheet**

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATD Project: Pell Corporation
Report Date: 05/17/21
ATD S/N: 0517211

Sample Identification: NMW-3a
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US-EPA-1624	mgl.	0.33	02/01	05/21/21	21:35	n/a

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

**Organic Analysis
Data Summary Sheet**

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

ATD Project: Pell Corporation
Report Date: 05/17/21
ATD S/N: 0517211

Sample Identification: NMW-3a
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US-EPA-1624	mgl.	1	02/01	05/21/21	22:10	n/a

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

File: 104071

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

**Organic Analysis
Data Summary Sheet**

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

**Organic Analysis
Data Summary Sheet**

ATD Project: Pell Corporation
Report Date: 05/17/21
ATD S/N: 0517211

Sample Identification: NMW-1d
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
US-EPA-1624	mgl.	0.05	0.02	10/01	10/04	02:00	

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Sample Identification: NMW-3a
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US-EPA-1624	mgl.	0.20	0.01	10/01	10/04	n/a

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

**Organic Analysis
Data Summary Sheet**

ATD Project: Pell Corporation
Report Date: 05/17/21
ATD S/N: 0517211

Sample Identification: NMW-3a
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US-EPA-1624	mgl.	0.21	0.01	10/01	10/04	n/a

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Mr. George Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103

**Organic Analysis
Data Summary Sheet**

ATD Project: Pell Corporation
Report Date: 05/17/21
ATD S/N: 0517211

Sample Identification: NMW-3a
Sample Date: 05/12/21
Sample Time: 02:47 AM
Sampled By: CHT
Laboratory Receipt Date: 05/17/21
Sample Metric: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US-EPA-1624	mgl.	0.19	0.01	10/01	10/04	n/a

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.

File: 104071



**Organic Analysis
Data Summary Sheet**

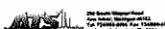
For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-22

Sample Date: 01/02/21
Sample Time: 1:00 PM
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.30
Reporting Limit: 0.25
Analysis Date: 01/02/21
Analysis Time: 21:00
Analysed By:



**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-1

Sample Date: 01/02/21
Sample Time: 1:00 PM
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.26
Reporting Limit: 0.21
Analysis Date: 01/02/21
Analysis Time: 21:04
Analysed By:



**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-2

Sample Date: 01/02/21
Sample Time: 1:00 PM
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.26
Reporting Limit: 0.21
Analysis Date: 01/02/21
Analysis Time: 19:04
Analysed By:



**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-25

Sample Date: 01/02/21
Sample Time: 1:00 AM
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.26
Reporting Limit: 0.21
Analysis Date: 01/02/21
Analysis Time: 1:00
Analysed By:

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Rev. 12/01/2019

**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-4d

Sample Date: 01/02/21
Sample Time: 1:00 PM
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 4.4
Reporting Limit: 0.28
Analysis Date: 01/02/21
Analysis Time: 21:23
Analysed By:

**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-1, Respiration

Sample Date: 01/02/21
Sample Time: 11:22 AM
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 1.0
Reporting Limit: 0.24
Analysis Date: 01/02/21
Analysis Time: 21:26
Analysed By:

**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-2d

Sample Date: 01/02/21
Sample Time: 11:22 AM
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.264
Reporting Limit: 0.24
Analysis Date: 01/02/21
Analysis Time: 4:03
Analysed By:

**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: Outlet

Sample Date: 01/02/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.065
Reporting Limit: 0.05
Analysis Date: 01/02/21
Analysis Time: 0:00
Analysed By:

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

**Organic Analysis
Data Summary Sheet**

For: Mr. Greg Treadel
Pell Corporation
642 South Wagner Road
Ann Arbor, MI 48103
Report Date: 01/02/21
ATD SRF: 0017211
ATD Project: Pell Corporation
#0001-022

Sample Identification: MW-2d

Sample Date: 01/02/21
Sample Time: na
Sampled By: Client
Laboratory Receipt Date: 01/02/21
Sample Metric: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.065
Reporting Limit: 0.05
Analysis Date: 01/02/21
Analysis Time: 0:00
Analysed By:

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

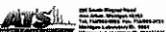
Rev. 12/01/2019

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Rev. 12/01/2019

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.

Rev. 12/01/2019



100 South Wagner Road
Ann Arbor, MI 48103
Tel: (734) 971-1400 Fax: (734) 971-1401
Web: www.atslab.com

Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-002

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:41	SLD



100 South Wagner Road
Ann Arbor, MI 48103
Tel: (734) 971-1400 Fax: (734) 971-1401
Web: www.atslab.com

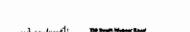
Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-003

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:41	SLD



100 South Wagner Road
Ann Arbor, MI 48103
Tel: (734) 971-1400 Fax: (734) 971-1401
Web: www.atslab.com

Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-004

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:41	SLD



100 South Wagner Road
Ann Arbor, MI 48103
Tel: (734) 971-1400 Fax: (734) 971-1401
Web: www.atslab.com

Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-005

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:41	SLD

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.

Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-006

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:30	SLD

Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-007

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:30	SLD

Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-008

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:30	SLD

Organic Analysis Data Summary Sheet

For Mr. Greg Trendel
Phl Corporation
100 South Wagner Road
Ann Arbor, MI 48103
Report Date: 09/17/21
ATS SRF: 0017211

Sample Identification: 0001-009

Sample Date: 09/17/21
Sample Time: 7:30 AM
Compiled By: Client
Laboratory Receipt Date: 09/17/21
Sample Matrix: Water

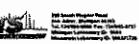
Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyzed By
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.000	0.000	09/17/21	10:30	SLD

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a - indicates not available / applicable.
Sample analyzed at native pH.



Organic Analysis
Data Summary Sheet

Dee Terrell
Supervisor
Duluth Water Treatment
462 South Wagner Road
Ave. M, Duluth, MI 49121

AT3 Project: Put Corporation
Report Date: 10/02/21
AT3 S/NP: 0017211

Sample Identification: Duluth Test

spk Date:
spk Time:
spk By:
analy Repetit Date:
spk Metric:

Method: Urea
Result: Reporting Limit: Analysis Date: Analysis Time: Analyzed By:
Reporting Lab: US EPA 1624 mg/L 0.006 Sat 01/02/21 12:24 AM



Organic Analysis
Data Summary Sheet



Quality Assurance / Quality Control
Data Summary

24 South Wagner Road
Ann Arbor, Michigan 48103
Tel. (734) 973-0029 Fax. (734) 973-6711
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

AT3 Project: Put Corporation
Report Date: 10/02/21

QC Batch Number: QD001-002
Parameter: T-C-Ethane (TPA 1524)

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
E2000-021 Kitchen 9/17/21 Multi Spike	0.320 mg/L	0.269 mg/L	0.295 mg/L	18.3

SPKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
H001-002, R2000-001 Laboratory Facial Water Kitchen 9/17/21 Multi Spike Kitchen 9/17/21 Multi Spike Duplicate	<0.01 mg/L <0.01 mg/L <0.01 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	104.0 102.0 97.3

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
R2000-021, K2000-001 Laboratory Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Comments:

Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Quality Assurance / Quality Control
Data Summary

24 South Wagner Road
Ann Arbor, Michigan 48103
Tel. (734) 973-0029 Fax. (734) 973-6711
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

AT3 Project: Put Corporation
Report Date: 10/02/21

QC Batch Number:

QD001-002, L-C-Glucosamine (EPA 9242)

AT3 Project: Put Corporation
Report Date: 10/02/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
H001-002 Matrix 9/17/21 Multi Spike	0.333 mg/L	0.311 mg/L	0.32 mg/L	6.0

SPKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
K2001-002, R2001-001 Laboratory Facial Water MM-37 9/22/21 Matrix Spike MM-37 9/22/21 Matrix Spike Duplicate	<0.01 mg/L <0.01 mg/L <0.01 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	0.009 mg/L 0.010 mg/L 0.010 mg/L	91.6 121.2 111.0

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
K2001-002 Laboratory Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Comments:

Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Comments:
No difference (US EPA method unless otherwise noted).

n/a - indicates not available / applicable.

Sample analyzed at native pL.

CONFIRMATION BY LSC/OMW_SPM_001721

rec: 10/4/21

LSC/OMW_SPM_001721

rec: 10/4/21

E2000-002 10/02/21 E2000-001 001721/HCHO_SPM_001721

rec: 10/4

E2000-002 10/02/21 E2000-001 001721/HCHO_SPM_001721

rec: 10

Quality Assurance / Quality Control
Data Summary

24 South Wagner Road
Ann Arbor, Michigan 48103
Tel. (734) 973-0029 Fax. (734) 973-6711
Michigan Laboratory Co., Inc.

AT3 Project: Put Corporation
Report Date: 10/02/21

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
K2001-002 Kitchen 9/17/21 Multi Spike	0.310 mg/L	0.291 mg/L	0.291 mg/L	11.6

SPKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
K2001-002 Laboratory Facial Water MM-37 9/22/21 Matrix Spike MM-37 9/22/21 Matrix Spike Duplicate	<0.01 mg/L <0.01 mg/L <0.01 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	0.009 mg/L 0.010 mg/L 0.010 mg/L	102.4 112.2 104.8

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
K2001-002 Laboratory Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Quality Assurance / Quality Control
Data Summary

24 South Wagner Road
Ann Arbor, Michigan 48103
Tel. (734) 973-0029 Fax. (734) 973-6711
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

AT3 Project: Put Corporation
Report Date: 10/02/21

QC Batch Number: QD001-002
Parameter: T-C-Ethane (TPA 1524)

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
K2001-002 MM-37 9/22/21 Matrix Spike	0.311 mg/L	0.293 mg/L	0.294 mg/L	5.9

SPKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
K2001-002 MM-37 9/22/21 Matrix Spike MM-37 9/22/21 Matrix Spike Duplicate	<0.01 mg/L <0.01 mg/L	0.010 mg/L 0.010 mg/L	0.010 mg/L 0.010 mg/L	103.8 102.0

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
K2001-002 Laboratory Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Quality Assurance / Quality Control
Data Summary

24 South Wagner Road
Ann Arbor, Michigan 48103
Tel. (734) 973-0029 Fax. (734) 973-6711
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

AT3 Project: Put Corporation
Report Date: 10/02/21

QC Batch Number: QD001-002
Parameter: T-C-Ethane (TPA 1524)

Results of QA Samples run concurrently with project samples

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
K2001-002 MM-37 9/22/21 Matrix Spike	0.27 mg/L	0.29 mg/L	0.28 mg/L	6.8

SPKES and/or QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
K2001-002 MM-37 9/22/21 Matrix Spike MM-25 9/25/21 Matrix Spike Duplicate	<0.01 mg/L <0.01 mg/L	0.010 mg/L 0.010 mg/L	0.010 mg/L 0.010 mg/L	104.2 102.0

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Decision
K2001-002 Laboratory Blank	<0.001 mg/L	Acceptable

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)

Comments:
Calculations performed prior to branching.

Control Limits:
Recoveries:
Laboratory Control Sample Recovery (90 - 110%)
Matrix Spike Recovery (90 - 120%)
Relative Range (Replicates ± 20%)



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 10/4/21
SRP / SDC Number(s): 0920211
Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following sixteen samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 9/26/21, and measured matrix-specific QA/QC:

Sample Item Identification	Sample Date	Received Date Armed Time	Analyzed	Matrix
Received #09211	09/26/21	Urgent	1,4-Dioxane	Water
Twk-01	10/01/21	10:10 AM	1,4-Dioxane	Water
Twk-02	10/02/21	10:10 AM	1,4-Dioxane	Water
Twk-03	10/03/21	10:10 AM	1,4-Dioxane	Water
Twk-04	10/04/21	10:10 AM	1,4-Dioxane	Water
Twk-05	10/05/21	10:10 AM	1,4-Dioxane	Water
Twk-06	10/06/21	10:10 AM	1,4-Dioxane	Water
Twk-07	10/07/21	10:10 AM	1,4-Dioxane	Water
Twk-08	10/08/21	10:10 AM	1,4-Dioxane	Water
Twk-09	10/09/21	10:10 AM	1,4-Dioxane	Water
Twk-10	10/10/21	10:10 AM	1,4-Dioxane	Water
Twk-11	10/11/21	10:10 AM	1,4-Dioxane	Water
Twk-12	10/12/21	10:10 AM	1,4-Dioxane	Water
Twk-13	10/13/21	10:10 AM	1,4-Dioxane	Water
Twk-14	10/14/21	10:10 AM	1,4-Dioxane	Water
Twk-15	10/15/21	10:10 AM	1,4-Dioxane	Water
Twk-16	10/16/21	10:10 AM	1,4-Dioxane	Water
Twk-17	10/17/21	10:10 AM	1,4-Dioxane	Water
Twk-18	10/18/21	10:10 AM	1,4-Dioxane	Water
Twk-19	10/19/21	10:10 AM	1,4-Dioxane	Water
Twk-20	10/20/21	10:10 AM	1,4-Dioxane	Water
Twk-21	10/21/21	10:10 AM	1,4-Dioxane	Water
Twk-22	10/22/21	10:10 AM	1,4-Dioxane	Water
Twk-23	10/23/21	10:10 AM	1,4-Dioxane	Water
Twk-24	10/24/21	10:10 AM	1,4-Dioxane	Water
Twk-25	10/25/21	10:10 AM	1,4-Dioxane	Water
Twk-26	10/26/21	10:10 AM	1,4-Dioxane	Water
Twk-27	10/27/21	10:10 AM	1,4-Dioxane	Water
Twk-28	10/28/21	10:10 AM	1,4-Dioxane	Water
Twk-29	10/29/21	10:10 AM	1,4-Dioxane	Water
Twk-30	10/30/21	10:10 AM	1,4-Dioxane	Water
Twk-31	10/31/21	10:10 AM	1,4-Dioxane	Water
Twk-32	10/32/21	10:10 AM	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analyses:

- 1,4-Dioxane (USP's 1424) - Urgent TAT
- 1,4-Dioxane (USP's 1424) - Standard TAT
- 2 Samples
- 1 Sample + 1 Matrix Spike + 1 Matrix Spike Duplicate

G001-002-1001_0920211.xls

Consultant in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0003 Fax 734/995-3731

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered/delivered by ATS by Pali Corporation staff. Samples were received with proper chain of custody documents included. Sample condition and availability, if any, was noted in the "Sample Receipt" section of the chain of custody documents. All samples were processed in a witness standard operating procedures (SOP) in the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOPs and project specifications. In addition, all data conforms to the laboratory's Quality Assurance / Quality Control Manual.

* None

Data Review and Approval

All data contained in this report have been generated in accordance with procedure specified (as is recommended) and method, and are consistent with detailed procedures described in a witness standard operating procedures (SOP) in the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOPs and project specifications. In addition, all data conforms to the laboratory's Quality Assurance / Quality Control Manual.

A single QA/QC batch is defined as no more than 20 samples excluding method blank (MB), LQC, fortified blanks (FB), LQB, LQC), matrix spike (MS), SPK), and duplicates (either spike or native (MSD, SPK, DUP, DUF, LR).

Data Deliverables

This data package constitutes a Level II package, other data report packages (Level I, Level IV DUV, EPA 105 (EID)) are available upon request. There were no backlog data summary sheet generated for this project.

Sample Analysis

1,4-Dioxane Analysis (QD/MS): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1424 (Volatile Organic Compounds by Isotopic Dilution Gas Chromatography - Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Assured Need:

- None

Analytical OA/QC Summary

Calibrating Verification

Method calibrations were verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

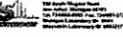
* None

Instrument Checks

Low system background was demonstrated through the analysis of instrument blanks on a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

* None

G001-002-1001_0920211.xls



Organic Analysis Data Summary Sheet

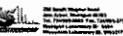
For: Mr. Greg Terrelle
Pal Corporation
442 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pal Calibration
Report Date: 10/4/21
ATS SRF: 0920211

Sample Identification: (Initial)

Sample Date: 09/26/21
Sample Time: 00
Sample ID: ClAN
Laboratory Report Date: 09/26/21
Sample Metric: Water

Parameter: 1,4-Dioxane
Method: US EPA 1424
Units: mg/L
Result: 0.006
Reporting Limit: 0.001
Analysis Date: 09/26/21
Analysis Time: 20:26
Analyst By: GDT



Organic Analysis Data Summary Sheet

For: Mr. Greg Terrelle
Pal Corporation
442 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Pal Calibration
Report Date: 10/4/21
ATS SRF: 0920211

Sample Identification: ECD/MSA

Sample Date: 09/25/21
Sample Time: 7:00 AM
Sample ID: ClAN
Laboratory Report Date: 09/26/21
Sample Metric: Water

Parameter: 1,4-Dioxane
Method: US EPA 1424
Units: mg/L
Result: 0.024
Reporting Limit: 0.001
Analysis Date: 09/26/21
Analysis Time: 08:44
Analyst By: GDT

Comments:
All methods reference US EPA methods unless otherwise noted.
** Includes not detected / no detection.

Comments:
All methods reference US EPA methods unless otherwise noted.
** Includes not provided / spike not detected.
Sample analyzed at native pH.

G001-002-1001_0920211.xls

G001-002-1001_0920211.xls

G001-002-1001_0920211.xls

G001-002-1001_0920211.xls

Organic Analytics Data Summary Sheet

Report Information	
Report Name:	Organic Analytics Data Summary Sheet
Report ID:	ORG-2023-01
Report Type:	Comprehensive
Report Date:	2023-10-15

Organic Analytics Data Summary Sheet

Report Parameters	
Parameter Name:	Reporting Limit
Parameter Value:	10000
Parameter Name:	Analysis Type
Parameter Value:	Avg Day

Organic Analytics Data Summary Sheet

Report Information	
Report Name:	Organic Analytics Data Summary Sheet
Report ID:	ORG-2023-02
Report Type:	Comprehensive
Report Date:	2023-10-16

Organic Analytics Data Summary Sheet

Report Information	
Report Name:	Organic Analytics Data Summary Sheet
Report ID:	ORG-2023-03
Report Type:	Comprehensive
Report Date:	2023-10-17

Organic Analytics Data Summary Sheet

Report Information	
Report Name:	Organic Analytics Data Summary Sheet
Report ID:	ORG-2023-04
Report Type:	Comprehensive
Report Date:	2023-10-18

Organic Analytics Data Summary Sheet

Report Information	
Report Name:	Organic Analytics Data Summary Sheet
Report ID:	ORG-2023-05
Report Type:	Comprehensive
Report Date:	2023-10-19

Compliance: All reports are generated in accordance with industry best practices and regulatory requirements.

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300 South Wagner Road
Ann Arbor, MI 48103
Tel: 800-624-8300 Fax: 734-994-3711
E-mail: info@ansl.com Web: www.ansl.com
Instrument Laboratory ID: 99425970

Organic Analysis Data Summary Sheet											
AT&T Project: Pali Corporation #0201-002											
For Mr. Greg Trendel Pali Corporation 502 South Wagner Road Ann Arbor, MI 48103 Report Date: 10/04/21 AT&T S/N: 0202211											
Sample Identification: TW-2L											
Sample Date: 07/17/21			Sample Time: 11:30 AM			Sampled By: Clerk			Laboratory Receipt Date: 07/20/21		
Sample Matrix: Water											
Parameter: Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By											
Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.77 0.01 10/12/21 26.10 21.0 21.0											
<small>Comments: All methods reference US EPA methods unless otherwise noted. na = indicates not available / applicable.</small>											
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Organic Analysis Data Summary Sheet											
AT&T Project: Pali Corporation #0201-002											
For Mr. Greg Trendel Pali Corporation 502 South Wagner Road Ann Arbor, MI 48103 Report Date: 10/04/21 AT&T S/N: 0202211											
Sample Identification: TW-2L											
Sample Date: 07/17/21			Sample Time: 11:30 AM			Sampled By: Clerk			Laboratory Receipt Date: 07/20/21		
Sample Matrix: Water											
Parameter: Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By											
Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.77 0.01 10/12/21 26.10 21.0 21.0											
<small>Comments: All methods reference US EPA methods unless otherwise noted. na = indicates not available / applicable.</small>											
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Organic Analysis Data Summary Sheet											
AT&T Project: Pali Corporation #0201-002											
For Mr. Greg Trendel Pali Corporation 502 South Wagner Road Ann Arbor, MI 48103 Report Date: 10/04/21 AT&T S/N: 0202211											
Sample Identification: TW-1L											
Sample Date: 07/17/21			Sample Time: 10:40 AM			Sampled By: Clerk			Laboratory Receipt Date: 07/20/21		
Sample Matrix: Water											
Parameter: Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By											
Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.77 0.01 10/12/21 26.10 21.0 21.0											
<small>Comments: All methods reference US EPA methods unless otherwise noted. na = indicates not available / applicable.</small>											
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Organic Analysis Data Summary Sheet											
AT&T Project: Pali Corporation #0201-002											
For Mr. Greg Trendel Pali Corporation 502 South Wagner Road Ann Arbor, MI 48103 Report Date: 10/04/21 AT&T S/N: 0202211											
Sample Identification: TW-1L											
Sample Date: 07/17/21			Sample Time: 10:40 AM			Sampled By: Clerk			Laboratory Receipt Date: 07/20/21		
Sample Matrix: Water											
Parameter: Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By											
Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.77 0.01 10/12/21 26.10 21.0 21.0											
<small>Comments: All methods reference US EPA methods unless otherwise noted. na = indicates not available / applicable.</small>											
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<small>Comments: All methods reference US EPA methods unless otherwise noted. na = indicates not available / applicable.</small>											
Organic Analysis Data Summary Sheet											
AT&T Project: Pali Corporation #0201-002											
For Mr. Greg Trendel Pali Corporation 502 South Wagner Road Ann Arbor, MI 48103 Report Date: 10/04/21 AT&T S/N: 0202211											
Sample Identification: TW-2L											
Sample Date: 07/17/21			Sample Time: 11:30 AM			Sampled By: Clerk			Laboratory Receipt Date: 07/20/21		
Sample Matrix: Water											
Parameter: Method Units Result Reporting Limit Analysis Date Analysis Time Analyzed By											
Organic Analysis 1,4-Dioxane US EPA 1624 mg/L 0.77 0.01 10/12/21 26.10 21.0 21.0											
<small>Comments: All methods reference US EPA methods unless otherwise noted. na = indicates not available / applicable.</small>											
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<small>Comments: All methods reference US EPA methods unless otherwise noted. na = indicates not available / applicable.</small>											
Quality Assurance / Quality Control Data Summary											
AT&T Project: Pali Corporation #0201-002											
QC Batch Number: QCDR0100211 Parameter: 1,4-Dioxane Report Date: 10/04/21											
Result of QA Samples run concurrently with project samples											
REPLICATE ANALYSIS											
Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)							
AQ001-002 AT&T 1624 Water 020221	0.011 mg/L	0.010 mg/L	0.011 mg/L	11.5							
SPKES and/or QC CHECK SAMPLES											
Sample/Analysis	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)							
AQ001-002 Laboratory Formed Spike AT&T 1624 Water 020221 AT&T 1624 Water 020221 Spike	±0.001 mg/L	0.010 mg/L	0.010 mg/L	12.4							
	±0.001 mg/L	0.010 mg/L	0.010 mg/L	13.2							
	±0.001 mg/L	0.010 mg/L	0.010 mg/L	10.4							
BLANK ANALYSIS											
Sample	Analyzed Concentration			QC Result							
F0001-002 Laboratory NaOH/HCl	40.001 mg/L			Acceptable							
Comments: Calibration performed prior to sampling											
Control Limits: Acceptance: Laboratory Control Sample Recovery (90 - 110%) Matrix Spike Recovery (90 - 110%) Relative Recovery (%): (90-110%)											
Comments: Calibration performed prior to sampling											
Control Limits: Acceptance: Laboratory Control Sample Recovery (90 - 110%) Matrix Spike Recovery (90 - 110%) Relative Recovery (%): (90-110%)											
Quality Assurance / Quality Control Data Summary											
AT&T Project: Pali Corporation #0201-002											
QC Batch Number: QCDR0100211 Parameter: 1,4-Dioxane Report Date: 10/04/21											
Result of QA Samples run concurrently with project samples											
REPLICATE ANALYSIS											
Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)							
AQ001-002 TW-14 SP13221 Water Spike	0.23 mg/L	0.22 mg/L	0.23 mg/L	1.5							
SPKES and/or QC CHECK SAMPLES											
Sample/Analysis	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)							
AQ001-002 Laboratory Formed Spike TW-14 SP13221 Water Spike Duplicate	±0.001 mg/L	0.010 mg/L	0.010 mg/L	12.5							
	±0.001 mg/L	0.010 mg/L	0.010 mg/L	10.8							
	±0.001 mg/L	0.010 mg/L	0.010 mg/L	10.4							
BLANK ANALYSIS											
Sample	Analyzed Concentration			QC Result							
AQ001-002 Laboratory NaOH/HCl	40.001 mg/L			Acceptable							
Comments: Calibration performed prior to sampling											
Control Limits: Acceptance: Laboratory Control Sample Recovery (90 - 110%) Matrix Spike Recovery (90 - 110%) Relative Recovery (%): (90-110%)											



Mr. George Tinsell
Pfaltz Corporation
542 South Wagner Road
Ann Arbor, MI 48103

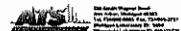
Organic Analysis Data Summary Sheet

AT5 Project: Pd Corporation
Report Date: 10/04/21
ATS SRF: 0021211

Sample Identification: pD-1

Sample Name: 62/2102
Sample Date: 7/22 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter: Organic Analysis
Method: 1,4-Dioxane
Units: mg/L
Result: 0.005
Reporting Limit: 0.001
Analysis Date: 09/21/21
Analysis Time: 16:33
Analyst: SLE



Pd Corporation
542 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: Outfall Crude

Sample Date: 09/21/21
Sample Time: 7:28 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyst
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	09/21/21	16:33	SLE

Organic Analysis Data Summary Sheet

AT5 Project: Pd Corporation
Report Date: 10/04/21
ATS SRF: 0021211

Mr. Mt. Cage Tinsell
Pd Corporation
542 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: Outfall Test

Sample Date: 09/21/21
Sample Time: 7:28 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyst
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	09/21/21	16:33	SLE

Organic Analysis Data Summary Sheet

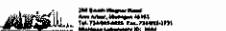
AT5 Project: Pd Corporation
Report Date: 10/04/21
ATS SRF: 0021211

Sample Identification: Outfall Test

Sample Date: 09/21/21
Sample Time: 7:28 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyst
Organic Analysis 1,4-Dioxane	US EPA 1624	mg/L	0.005	0.001	09/21/21	16:33	SLE

Quality Assurance / Quality Control Data Summary



Mr. George Tinsell
Pd Corporation
542 South Wagner Road
Ann Arbor, MI 48103

OC Batch Number: 0021211
Parameter: 1,4-Dioxane
Report Date: 10/04/21

Results of QA Sample run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
PG01-002 Pd 1,4-Dioxane Matrix Spike	0.00 mg.	0.00 mg.	0.00 mg.	0.0

SPKES AND QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Actual Concentration	Analyzed Concentration	Recovery (percent)
PG01-002 Laboratory Product Blank HPLC-QC Matrix Spike Pd 1,4-Dioxane Matrix Spike	<0.001 mg/L 0.15 mg/L 0.10 mg/L	0.010 mg/L 0.30 mg/L 0.20 mg/L	0.010 mg/L 0.30 mg/L 0.20 mg/L	14.1 11.4 10.1

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Outcome
Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments: Calculations performed prior to threshold.

Control Limits:
Laboratory Control Sample Recovery (85 - 115%)
Matrix Spike Recovery (80 - 120%)
Recovery Range: Threshold > 10%

Comments:
All methods reference US EPA methods unless otherwise noted.
No = Not available / Not applicable.
Sample analyzed as matrix (P).

Comments:
All methods reference US EPA methods unless otherwise noted.
No = Not available / Not applicable.
Sample analyzed as matrix (P).

Comments:
All methods reference US EPA methods unless otherwise noted.
No = Not available / Not applicable.
Sample analyzed at matrix (P).

Case Narrative: 0021211

Rev. 10/04/21

0021211_0021211_0021211

Rev. 10/04/21

0021211_0021211_0021211

Rev. 10/04/21

XAV01-0021211Pd 0021211_0021211

Rev. 10/04



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 10/04/21
SRF / SDG Number(s): 0021211
Client PO Number: 454859621

Case Narrative Summary

This case narrative applies to the following seven samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 9/21/21, and associated with specific QA/QC:

Sample

Client Sample Identification	Sample Date	Received/Tech. Assmt. Date	Analysis	Matrix
Pd 1,4-Dioxane	09/21/21	09/21/21	1,4-Dioxane	Water
Crude Oil (Pd)	09/21/21	09/21/21	1,4-Dioxane	Water
Crude Oil (Pd)	09/21/21	09/21/21	1,4-Dioxane	Water
Crude Oil (Pd)	09/21/21	09/21/21	1,4-Dioxane	Water
Crude Oil (Pd)	09/21/21	09/21/21	1,4-Dioxane	Water
Crude Oil (Pd)	09/21/21	09/21/21	1,4-Dioxane	Water

Upon receipt samples were scheduled for the following analysis:

- Analysis:
• 1,4-Dioxane (US EPA 1624) - Urgent TAT • 7 Samples

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pd Corporation (Pd). Samples were received with proper chain of custody records included. Sample condition and handled (Fast, Slow) other presented in the "Sample Record" section of this report or in the comments on individual data sheet. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

001-0021211CH_0021211

Consultants in Chemistry & Environmental Science
200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0005 Fax 734/995-3731

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are compliant with detailed procedures as outlined in a written standard operating procedure (SOP) or method, as specified by EPA. All data are peer and management reviewed to ensure compliance with all relevant EPA and/or laboratory's quality assurance / quality control specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control criteria.

Data Deliverables

This data package constitutes a Level II package, where data report packages (Level I, Level IV EPA, EPA R3 ED10) are available upon request. There were no hordey data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GC/MS): Samples were analyzed by purge and trap GC/MS in accordance with US EPA method 1624 (Vehicle Organic Compounds by Isotope Dilution Gas Chromatography - Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported in parts per million (ppm).

Analytical Notes:

- None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standard ratios and retention times met the acceptance criteria with the following exceptions:

- None

001-0021211CH_0021211

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB met the acceptance criteria with the following exception:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB met the acceptance criteria with the following exception:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exception:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exception:

- None

Sample Duplicate

Samples containing compounds of concern were stored at the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- None

Mark T. DeLong (Quality Assurance Coordinator)

/ October 4, 2021

Philip B. Stover (Laboratory Director)

/ October 4, 2021





LABORATORY OPERATIONS
CASE NARRATIVE

ATS Project Number: G001-002

Report Date: 10/4/21

SRP / SDG Number(s): 0923111

Client PO Number: 4504859621

CHAIN OF CUSTODY RECORD

Rev. 1

Case Narrative Summary

This case narrative applies to the following seven samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 9/23/21, and associated matrix-specific QA/QC:

Sample ID	Client Sample Description	Sample Date	Analyst	Matrix	Comments
P-1	1,4-Dioxane (USCPA 1624)	9/23/21	J.D.	Water	
P-2	1,4-Dioxane (USCPA 1624)	9/23/21	J.D.	Water	
P-3	1,4-Dioxane (USCPA 1624)	9/23/21	J.D.	Water	
P-4	1,4-Dioxane (USCPA 1624)	9/23/21	J.D.	Water	
P-5	1,4-Dioxane (USCPA 1624)	9/23/21	J.D.	Water	
P-6	1,4-Dioxane (USCPA 1624)	9/23/21	J.D.	Water	
P-7	1,4-Dioxane (USCPA 1624)	9/23/21	J.D.	Water	

Open excess samples were scheduled for the following analyses:

- | | |
|---|-------------------|
| Analysis | Number of Samples |
| + 1,4-Dioxane (USCPA 1624) - Liquid TAT | + 7 Samples |

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pat Corporation staff. Samples were received via proper chain of custody records included. Sample condition and validation (i.e., canister present to the "sample freeze" status of site report or in the extruder or multi-vial data sheet). All samples were prepared and analyzed within 45 days from the following exceptions:

- + None

0911-002-314CH_0923111aw Consultants in Chemistry & Environmental Science

200 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-4995 Fax 734/995-3731

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, and are presented with detailed procedures described in a written standard operating procedure (SOP) specific to the test method and analyst (e.g., USCPA). All data are peer reviewed and management reviewed to ensure compliance with the relevant reference SOPs and analytical specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manual.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MS, LBD), fortified blanks (FB, LFB), LCS, entire spikes (ES, SPC), and duplicates whether spiked or native (MSD, RNP DUD, DUP, LR).

Data Deliverability

This data package contains a Level II package, which data report package (Level I, Level IV DPV, IRP, R3 EDD) are available upon request. There were no backup data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (USCPA): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 824.5 (Volatile Organic Compounds by Flame Ionization Gas Chromatography - Mass Spectrometry). An initial calibration with six test level levels was used in quantitation 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Analytical Notes:

- + None

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- + None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- + None

QA/QC Batch Summary

Internal Standards

Internal standards assess and monitor biases meet the acceptance criteria with the following exceptions:

- + None

0801-002-314CV_0923111aw

Laboratory Report Blanks

A laboratory report blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- + None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- + None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exceptions:

- + None

Matrix Repliques

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- + None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for low compliance. The following samples were diluted for 1,4-Dioxane:

- + None

Mark Bakong

/October 4, 2021

Mark T. DeLoach (Quality Assurance Coordinator)

Philip B. Brown

/October 4, 2021

Philip B. Brown (Laboratory Director)



Organic Analysis Data Summary Sheet

Organic Analysis Data Summary Sheet

AT&T Project #002-314CH
Pat Corporation

Report Date: 10/4/21

ATS GRP: 0923111

Organic Analysis Data Summary Sheet

AT&T Project #002-314CH
Pat Corporation

Report Date: 10/4/21

ATS GRP: 0923111

Organic Analysis Data Summary Sheet

AT&T Project #002-314CH
Pat Corporation

Report Date: 10/4/21

ATS GRP: 0923111

Organic Analysis Data Summary Sheet

AT&T Project #002-314CH
Pat Corporation

Report Date: 10/4/21

ATS GRP: 0923111

Organic Analysis Data Summary Sheet

AT&T Project #002-314CH
Pat Corporation

Report Date: 10/4/21

ATS GRP: 0923111

Organic Analysis Data Summary Sheet

AT&T Project #002-314CH
Pat Corporation

Report Date: 10/4/21

ATS GRP: 0923111

McKinsey & Company
500 South Wagner Road
3rd Floor, Suite 3000
Ann Arbor, MI 48103-2114

Sample Identification: QD/111

Sample Date: 9/23/21	Sample Time: na	Sample By: Client	Laboratory Report Date: 9/23/21	Sample Matrix: Water
Parameter: Organic Analysis	Method: US EPA 1624	Units: mg/L	Result: 0.005	Reporting Limit: 0.001
			Analysis Date: 9/23/21	Analysis Time: 16:00
			Analyst: J.D.	Analyzed By: D.G.

Sample Identification: 1,4-Dioxane

Sample Date: 9/23/21	Sample Time: 2:15 AM	Sample By: Client	Laboratory Report Date: 9/23/21	Sample Matrix: Water
Parameter: Organic Analysis	Method: US EPA 1624	Units: mg/L	Result: 0.004	Reporting Limit: 0.001
			Analysis Date: 9/23/21	Analysis Time: 17:00
			Analyst: J.D.	Analyzed By: D.G.

Sample Identification: DQ-OC-2A

Sample Date: 9/23/21	Sample Time: 2:15 AM	Sample By: Client	Laboratory Report Date: 9/23/21	Sample Matrix: Water
Parameter: Organic Analysis	Method: US EPA 1624	Units: mg/L	Result: 0.026	Reporting Limit: 0.001
			Analysis Date: 9/23/21	Analysis Time: 16:00
			Analyst: J.D.	Analyzed By: D.G.

Sample Identification: QD-OC-1A

Sample Date: 9/23/21	Sample Time: 2:15 AM	Sample By: Client	Laboratory Report Date: 9/23/21	Sample Matrix: Water
Parameter: Organic Analysis	Method: US EPA 1624	Units: mg/L	Result: 0.025	Reporting Limit: 0.001
			Analysis Date: 9/23/21	Analysis Time: 16:00
			Analyst: J.D.	Analyzed By: D.G.

Sample Identification: QD-A

Sample Date: 9/23/21	Sample Time: 7:26 AM	Sample By: Client	Laboratory Report Date: 9/23/21	Sample Matrix: Water
Parameter: Organic Analysis	Method: US EPA 1624	Units: mg/L	Result: 0.025	Reporting Limit: 0.001
			Analysis Date: 9/23/21	Analysis Time: 16:00
			Analyst: J.D.	Analyzed By: D.G.

Comments
All methods reference US EPA methods unless otherwise noted.
na = Not available / applicable.
Sample analyzed at native p/p.

Comments
All methods reference US EPA methods unless otherwise noted.
na = Not available / applicable.
Sample analyzed at native p/p.

Comments
All methods reference US EPA methods unless otherwise noted.
na = Not available / applicable.
Sample analyzed at native p/p.

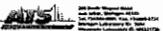
Comments
All methods reference US EPA methods unless otherwise noted.
na = Not available / applicable.
Sample analyzed at native p/p.

Organic Analysis
Data Summary Sheet

U. S. Geologic Survey 1801 Peachtree Street, N.E. Atlanta, Georgia 30367-4202	AT&T Project: Bulk Corporation	IS201-H02				
	Report Date:	10/04/02				
	AT&T DAF:	032201				
Sample Identification:						
Sample Date:	02/22/02					
Sample Time:	7:30 AM					
Site:	Coker					
Laboratory Process ID:	02/22/02					
Sample Matrix:	Water					
Method:	Date:	Result:	Reporting Unit:	Analytical Data:	Analytical Date:	Analytical By:
I,4-Dioxane	US EPA Method 1624	mg/L	0.000	0.000	20/02	SLB

Comments:
All methods utilize US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

ver. 10/02



400 South Wagner Road
Ann Arbor, MI 48103
For Mr. Greg Treadel
Patt Corporation
942 South Wagner Road
Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

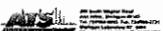
ATS Project: Patt Corporation
Report Date: 10/04/2011
ATS GRN: 0004211

Sample Identification: Outot

Sample Date: 09/21/21
Sample Time: 10:00 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/09/21
Analysis Time: 10:14
Analyst ID: SLS



400 South Wagner Road
Ann Arbor, MI 48103
For Mr. Greg Treadel
Patt Corporation
942 South Wagner Road
Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

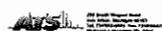
ATS Project: Patt Corporation
Report Date: 10/04/2011
ATS GRN: 0004211

Sample Identification: F-100-1A

Sample Date: 09/21/21
Sample Time: 7:15 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/09/21
Analysis Time: 10:10
Analyst ID: SLS



400 South Wagner Road
Ann Arbor, MI 48103
For Mr. Greg Treadel
Patt Corporation
942 South Wagner Road
Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

ATS Project: Patt Corporation
Report Date: 10/04/2011
ATS GRN: 0004211

Sample Identification: F-100-2a

Sample Date: 09/21/21
Sample Time: 7:15 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/09/21
Analysis Time: 10:10
Analyst ID: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.
Sample analyzed at native pH.

1,4-Dioxane_09/21/21

10:00

1,4-Dioxane_09/21/21

10:00

1,4-Dioxane_09/21/21

10:00

Organic Analysis Data Summary Sheet

400 South Wagner Road
Ann Arbor, MI 48103
For Mr. Greg Treadel
Patt Corporation
942 South Wagner Road
Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

ATS Project: Patt Corporation
Report Date: 10/04/21
ATS GRN: 0004211

Sample Identification: Outot

Sample Date: 09/21/21
Sample Time: 7:00 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/09/21
Analysis Time: 10:10
Analyst ID: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.
Sample analyzed at native pH.

Organic Analysis Data Summary Sheet

400 South Wagner Road
Ann Arbor, MI 48103
For Mr. Greg Treadel
Patt Corporation
942 South Wagner Road
Ann Arbor, MI 48103

ATS Project: Patt Corporation
Report Date: 10/04/21
ATS GRN: 0004211

Sample Identification: Outot

Sample Date: 09/21/21
Sample Time: 7:00 AM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/09/21
Analysis Time: 10:10
Analyst ID: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.
Sample analyzed at native pH.

Organic Analysis Data Summary Sheet

400 South Wagner Road
Ann Arbor, MI 48103
For Mr. Greg Treadel
Patt Corporation
942 South Wagner Road
Ann Arbor, MI 48103

Organic Analysis Data Summary Sheet

ATS Project: Patt Corporation
Report Date: 10/04/21
ATS GRN: 0004211

Sample Identification: CDM-1B

Sample Date: 09/21/21
Sample Time: 1:20 PM
Sample By: Client
Laboratory Report Date: 09/21/21
Sample Matrix: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/09/21
Analysis Time: 21:40
Analyst ID: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
n/a = indicates not available / applicable.
Sample analyzed at native pH.

1,4-Dioxane_09/21/21

10:00

1,4-Dioxane_09/21/21

10:00

1,4-Dioxane_09/21/21

10:00

**Organic Analysis
Data Summary Sheet**

ATP Project #	Sample ID	Sample Description	ATP Method	Report Date	ATP Date
Mr. Clark Treadle	100-0001	For Dr. Gopal Patel 100 mg sample in 10 mL HCl	100-0001	10/20/2011	10/20/2011

**Organic Analysis
Data Summary Sheet**

ATP Project #	Sample ID	Sample Description	ATP Method	Report Date	ATP Date
Mr. Clark Treadle	100-0002	For Dr. Gopal Patel 100 mg sample in 10 mL HCl	100-0002	10/20/2011	10/20/2011

**Organic Analysis
Data Summary Sheet**

ATP Project #	Sample ID	Sample Description	ATP Method	Report Date	ATP Date
Mr. Clark Treadle	100-0003	For Dr. Gopal Patel 100 mg sample in 10 mL HCl	100-0003	10/20/2011	10/20/2011

**Organic Analysis
Data Summary Sheet**

ATP Project #	Sample ID	Sample Description	ATP Method	Report Date	ATP Date
Mr. Clark Treadle	100-0004	For Dr. Gopal Patel 100 mg sample in 10 mL HCl	100-0004	10/20/2011	10/20/2011

Comments: All results are based on 100 mg sample weight. No detection limit applicable.

Comments: All results are based on 100 mg sample weight. No detection limit applicable.

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Organic Analysis Data Summary Sheet		Organic Analysis Data Summary Sheet		Organic Analysis Data Summary Sheet		Organic Analysis Data Summary Sheet	
ATP Project #	Sample ID	Sample Description	ATP Method	Report Date	ATP Date	ATP Project #	Sample ID
Mr. Clark Treadle	100-0001	For Dr. Gopal Patel 100 mg sample in 10 mL HCl	100-0001	10/20/2011	10/20/2011	Mr. Clark Treadle	100-0001
		Sample Date: 10/20/2011					
		Sample Type: Laboratory Sample					
		Sample Weight (mg): 100.000					
		Sample Volume (mL): 10.000					
		Sample pH: 1.000					
		Sample Temperature (°C): 20.000					
		Sample Density (g/mL): 1.000					
		Sample Viscosity (cP): 1.000					
		Sample Color: Colorless					
		Sample Consistency: Liquid					
		Sample Origin: Synthetic					
		Sample Preparation: Direct					
		Sample Treatment: None					
		Sample Storage: Room Temp					
		Sample Container: Glass					
		Sample Label: 100-0001					
		Sample Notes: None					
		Sample Status: Analyzed					
		Sample Date: 10/20/2011					
		Sample Type: Laboratory Sample					
		Sample Weight (mg): 100.000					
		Sample Volume (mL): 10.000					
		Sample pH: 1.000					
		Sample Temperature (°C): 20.000					
		Sample Density (g/mL): 1.000					
		Sample Viscosity (cP): 1.000					
		Sample Color: Colorless					
		Sample Consistency: Liquid					
		Sample Origin: Synthetic					
		Sample Preparation: Direct					
		Sample Treatment: None					
		Sample Storage: Room Temp					
		Sample Container: Glass					
		Sample Label: 100-0002					
		Sample Notes: None					
		Sample Status: Analyzed					
		Sample Date: 10/20/2011					
		Sample Type: Laboratory Sample					
		Sample Weight (mg): 100.000					
		Sample Volume (mL): 10.000					
		Sample pH: 1.000					
		Sample Temperature (°C): 20.000					
		Sample Density (g/mL): 1.000					
		Sample Viscosity (cP): 1.000					
		Sample Color: Colorless					
		Sample Consistency: Liquid					
		Sample Origin: Synthetic					
		Sample Preparation: Direct					
		Sample Treatment: None					
		Sample Storage: Room Temp					
		Sample Container: Glass					
		Sample Label: 100-0003					
		Sample Notes: None					
		Sample Status: Analyzed					
		Sample Date: 10/20/2011					
		Sample Type: Laboratory Sample					
		Sample Weight (mg): 100.000					
		Sample Volume (mL): 10.000					
		Sample pH: 1.000					
		Sample Temperature (°C): 20.000					
		Sample Density (g/mL): 1.000					
		Sample Viscosity (cP): 1.000					
		Sample Color: Colorless					
		Sample Consistency: Liquid					
		Sample Origin: Synthetic					
		Sample Preparation: Direct					
		Sample Treatment: None					
		Sample Storage: Room Temp					
		Sample Container: Glass					
		Sample Label: 100-0004					
		Sample Notes: None					
		Sample Status: Analyzed					
		Sample Date: 10/20/2011					
		Sample Type: Laboratory Sample					
		Sample Weight (mg): 100.000					
		Sample Volume (mL): 10.000					
		Sample pH: 1.000					
		Sample Temperature (°C): 20.000					
		Sample Density (g/mL): 1.000					
		Sample Viscosity (cP): 1.000					
		Sample Color: Colorless					
		Sample Consistency: Liquid					
		Sample Origin: Synthetic					
		Sample Preparation: Direct					
		Sample Treatment: None					
		Sample Storage: Room Temp					
		Sample Container: Glass					

Mr. Clark

Organic Analysis Data Summary Sheet

ATB Project: Pub Corporation
Report Date: 10/4/21
ATS JPF: 224271Sample Identification:
Sample ID: 6035-002
Sample Type: Water
Sampled By: Client
Laboratory Report Date: 10/4/21
Sample Metric: Water

Parameter: Weight, mg/g; Units: mg/L; Reporting Limit: 0.025; Analyte Basis: Analyzed Time: Analyzed By:

Organic Analysis: Leachate; Units: mg/L; Reporting Limit: 0.025; Analyte Basis: Analyzed Time: Analyzed By:

Quality Assurance / Quality Control Data Summary

CC Batch Number: GCGG1-0221
Report Date: 10/4/21ATB Project: Pub Corporation
Report Date: 10/4/21

Result of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#GCGG1-0221 ATB Tap Water 024221 4000 mg/L	3230 mg/L	3240 mg/L	3235 mg/L	22

DPMES another QC CHECK SAMPLES

Samp/Analysis	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#GCGG1-0221 Laboratory Neutral Blank	<0.025 mg/L ATB Tap Water 024221 4000 mg/L ATB Tap Water 024221 4000 mg/L	0.025 mg/L 0.025 mg/L 0.025 mg/L	0.026 mg/L 0.027 mg/L 0.026 mg/L	102.4 102.7 102.7

BLANK ANALYZED

Sample	Analyzed Concentration	QC Decision
#GCGG1-0221 Laboratory Neutral Blank	<0.025 mg/L	Acceptable

Comments:

Calculations performed prior to rounding:

Control Limits:

Recoveries (mg/L) / Calculations performed prior to rounding:
Laboratory Control Sample Recovery (68 - 115%)
Matrix Spike Recovery (95 - 120%)
Relative Range (10-90%)

Quality Assurance / Quality Control Data Summary

CC Batch Number: GCGG1-0221-1210
Report Date: 10/4/21ATB Project: Pub Corporation
Report Date: 10/4/21

Result of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
#GCGG1-0221-1210 MN-31 5001 Virtex Steel	8.00 mg/L	8.04 mg/L	8.02 mg/L	0.4

SPMES another QC CHECK SAMPLES

Samp/Analysis	Known Concentration	Spike Concentration	Analyzed Concentration	Recovery (percent)
#GCGG1-0221-1210 Laboratory Neutral Blank	<0.025 mg/L MN-31 5001 Virtex Steel	0.025 mg/L 0.025 mg/L 0.025 mg/L	0.026 mg/L 0.026 mg/L 0.026 mg/L	102.4 102.7 102.7

BLANK ANALYZED

Sample	Analyzed Concentration	QC Decision
#GCGG1-0221-1210 Laboratory Neutral Blank	<0.025 mg/L	Acceptable

Comments:

Calculations performed prior to rounding:

Control Limits:

Recoveries (mg/L) / Calculations performed prior to rounding:
Laboratory Control Sample Recovery (68 - 115%)
Matrix Spike Recovery (95 - 120%)
Relative Range (10-90%)

CHAIN OF CUSTODY RECORD

Page 1

Order No.	Case Number	Sample Description	Date Received	Last Lab	Date Analyzed		Analyst	Comments
					Date	Time		
1	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:20:24	AJL	
2	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:21:29	AJL	
3	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:22:35	AJL	
4	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:23:42	AJL	
5	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:24:48	AJL	
6	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:25:55	AJL	
7	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:26:58	AJL	
8	104/4/21	104/4/21	10/4/21	ATB	10/4/21	04:27:51	AJL	

W-104/4/21

XGCGG1-022.1210F.GCGG1-0221-1210.SRF_024221

W-104/21

XGCGG1-022.2110F.XGCGG1-0221.SRF_024221

W-104/21

LABORATORY OPERATIONS
CASE NARRATIVEATS Project Number: G991-002
Report Date: 10/4/21
SRF / SDG Number(s): 8927211
Client PO Number: 4594853621

Case Narrative Summary

This case receives analyses on the following eight samples that were received at Atm Atrb Technical Services, Inc. (ATS) on 10/3/21, and associated matrix-specific (QA/QC).

Sample:

Lab Sample Identifier	Sample Date	Received Date	Arrival Time	Analyst	Matrix
027501	10/3/21	10/4/21	04:20:00	AJL	Water
027502A	10/3/21	10/4/21	04:20:00	AJL	Water
027502B	10/3/21	10/4/21	04:20:00	AJL	Water
027503	10/3/21	10/4/21	04:20:00	AJL	Water
027504	10/3/21	10/4/21	04:20:00	AJL	Water
027505	10/3/21	10/4/21	04:20:00	AJL	Water
027506	10/3/21	10/4/21	04:20:00	AJL	Water

Upon receipt samples were selected for the following analyses.

- 1,4-Dioxane (USP) - Urgent TAT
- + 8 Samples

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Xil Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, were either presented to the "Sample Receipt" vendor or noted in the comments on individual data sheets. All samples were prepared and analyzed within 48 days from the following analysis date:

- * None

GSI-GC2110CH-02751.JAD
Correlations in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734995-6893 Fax 734995-2721

Data Review and Approval

All data contained in this report were generated in accordance with procedures provided in the requested standard test method, and are conducted by detailed procedures described in a written standard operating procedure (SOP) specific to the ATS laboratory, as required by USEPA. All data are near or management review to ensure compliance with the above referenced SOP's and project specifications. In addition, all data submitted to the laboratory's Quality Assurance / Quality Control Manager.

Matrix Spikes and Spike Duplicates

A single QA/QC batch is defined as no more than 30 samples excluding method blanks (M), LRBs, fortified blanks (FB), matrix spikes (MS), and duplicate matrix spikes (MSD), matrix spike dilutes (MSD), or duplicate matrix spike dilutes (MSDD).

Data Deliverables

This data package contains a Level II package; other data packages (Level I, Level IV DVP, EPA RT EDD) are available upon request. There were no backlog data summary sheets generated for this project.

Sample Analysis

- 1,4-Dioxane (QA/QC): Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Gas Chromatography - Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

Analyzer Note:

- * None

Analytical QA/QC Summary

Method detection was verified through the analysis of a multi-level added calibration verification (CV) shedding a response of every 12 times. All verifications standards met the acceptance criteria with the following exception:

- * None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 times. All instrument blanks met the acceptance criteria with the following exception:

- * None

QA/QC Batch Summary

Internal Standards

External standards were run on retention times that the acceptance criteria with the following exception:

- * None

GSI-GC2110CH-02751.JAD

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exception:

- * None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (FB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exception:

- * None

Matrix Spikes and Spike Dilutions

A matrix spike (MS) and matrix spike dilute (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exception:

- * None

Matrix Replicates

A matrix spike (MS) and matrix spike dilute (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exception:

- * None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and analyzed for their responses. The following samples were diluted for 1,4-Dioxane:

- * Not found 02751

Mark Alderson

10/4/2021

Mark T. DeLong (Quality Assurance Coordinator)

Philip S. Simon (Laboratory Director)

10/4/2021



**Organic Analysis
Data Summary Sheet**

36 South Wagner Road
P.O. Box 27111
Ann Arbor, MI 48106-2711

**Organic Analysis
Data Summary Sheet**

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**Organic Analysis
Data Summary Sheet**

36 South Wagner Road
P.O. Box 27111
Ann Arbor, MI 48106-2711

**Organic Analysis
Data Summary Sheet**

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-001

Sample Date: 02/27/21
Sample Time: 7:49 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-001

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-002

Sample Date: 02/27/21
Sample Time: 7:20 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-002

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-003

Sample Date: 02/27/21
Sample Time: 7:20 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-003

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-004

Sample Date: 02/27/21
Sample Time: 7:20 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-004

Parameter: 1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.003
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 18:34
Assigned By:

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.004
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 14:10
Assigned By:

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.001
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 17:30
Assigned By:

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.004
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 17:47
Assigned By:

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Inc. 10401

Inc. 10401

Inc. 10401

Inc. 10401

Inc. 10401

**Organic Analysis
Data Summary Sheet**

36 South Wagner Road
P.O. Box 27111
Ann Arbor, MI 48106-2711

**Organic Analysis
Data Summary Sheet**

36 South Wagner Road
P.O. Box 27111
Ann Arbor, MI 48106-2711

**Organic Analysis
Data Summary Sheet**

36 South Wagner Road
P.O. Box 27111
Ann Arbor, MI 48106-2711

**Organic Analysis
Data Summary Sheet**

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-005

Sample Date: 02/27/21
Sample Time: 7:49 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-005

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-006

Sample Date: 02/27/21
Sample Time: 7:49 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-006

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-007

Sample Date: 02/27/21
Sample Time: 7:29 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-007

For Mr. George Trendel
Pill Corporation
642 South Wagner Road
Ann Arbor, MI 48103

Sample Identification: 0001-008

Sample Date: 02/27/21
Sample Time: 7:29 AM
Sample By: Client
Laboratory Request Date: 02/27/21
Sample Metric: Water

ATD Project: Pill Corporation
Report Date: 02/27/21
ATD SRF: 0001-008

Parameter: 1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.006
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 18:31
Assigned By:

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.006
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 18:31
Assigned By:

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.001
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 20:30
Assigned By:

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1624
Units: mg/L
Result: 0.006
Reporting Limit: 0.001
Analysis Date: 02/27/21
Analysis Time: 20:40
Assigned By:

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = indicates not available / applicable.
Sample analyzed at native pH.

Inc. 10401

Inc. 10401

Inc. 10401

Inc. 10401

Inc. 10401

Quality Assurance / Quality Control Data Summary

ATS Project: Full Corporation Report Date: 10/4/21 Report ID: G001-002 Parameter: L4-Dilution (SPN 1624)

REPLICATE ANALYSIS

Sample	Replicate #1	Replicate #2	Mean	Relative Standard Deviation (%)
HQ001-002 ATD Tap Water 10/20/21 Metal Spike	0.010 mg/L	0.010 mg/L	0.010 mg/L	1%

SPiked and/or QC CHECK SAMPLES

Sample/Analysis	Known Concentration	Spike Concentration	Analyzed Concentration	Relativity (percent)
Laboratory Certified Sample	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100%
ATD Tap Water 10/20/21 Metal Spike	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100%
ATD Tap Water 10/20/21 Metal Spike Duplicate	<0.001 mg/L	0.010 mg/L	0.010 mg/L	100%

BLANK ANALYSIS

Sample	Analyst Concentration (mg/L)	QC Decision
HQ001-002 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Comments submitted prior to analysis.

Control Limit:
Recovery: Laboratory Overall Sample Recovery (86-115%)
Metal Spike Recovery (90-110%)
Reportable: (-10%)

DATA REVIEW AND APPROVAL

All data contained in this report have been presented in association with guidance provided in the referenced standard test method, and are consistent with detailed procedures described in a written standard operating procedure (SOP) specific to the job laboratory, as recorded in the ODS. All data are peer and management reviewed to ensure consistency with the above standards, and conform to current ATD project specifications. In addition, all data conforms to the laboratory's Quality Assurance / Quality Control Manual.

A single QA/QC batch is defined as no more than 20 samples consisting within blanks (BL), L4(D), Method Blanks (MB), L2(B), Matrix Spikes (MS, SPK), and duplicates whether spiked or not (SD, M2, D2, CUP, DU, LR).

Data Deliverables

This data package constitutes a Level II package, other data report packages (Level I, Level IV ODF, EPA RI 30/52) are available upon request. There were no laboratory data summary sheets generated for this project.

Sample Analysis

1.4-Dilute Analysis (OCM2): Samples were analyzed by purge and trap GC/MS in association with USP Reference Method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography - Mass Spectrometry). An initial standard solution of at least five times was run at the beginning of each day. Samples were inserted in project specific sequencing lists. Samples were reported as negative.

Autosampler Note:

- No

Analytical QA/QC Summary

Calibration Verifications

Method calibration was verified through the analysis of a mid-level initial dilution verDilute (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exception:

- No

Instrument Ramps

Line system background was determined through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exception:

- No

QA/QC Batch Summary

Internal Standards

Internal standards analysis and retention times met the acceptance criteria with the following exception:

- No

Report Number: OCNC0010027915
Parameter: L4-Dilution (SPN 1624)
Report Date: 10/4/21

DATA OF CUSTODY RECORD

File	EDITION/VERSION	Date	Order	Sample Type	Sample ID	Sample Name	Specimen ID	Specimen Name
Copier / Transcribed	Original / QC Positive	2021-10-04	10	Water	ATD-10	ATD Tap Water 10/20/21 Metal Spike		
THIS FORM IS TO BE KEPT IN A LOGBOOK FOR THE PROJECT. IT IS THE RESPONSIBILITY OF THE ANALYST TO DATE AND SIGN THIS FORM AS SOON AS POSSIBLE.								

Signatures:

Mark DeLang (Quality Assurance Coordinator)
Signature: 
Date: 10/4/21

Philip B. Steine (Laboratory Director)
Signature: 
Date: 10/4/21

Comments:
All methods reference LC/CPA methods unless otherwise noted.
No methods not applicable.
Sample analysis not done yet.

Case Narrative Summary

ATS Project Number: G001-002
Report Date: 10/4/21
SRP / SDG Number(s): 09282111
Client PO Number: 4504859621

LABORATORY OPERATIONS CASE NARRATIVE

This case narrative applies to the following also samples that were received at Ainsworth Technical Services, Inc. (ATS) on 10/20/21, and associated assays/species Q/A/QC:

Samples

Received Date/Analysis	Sample Name	Received Test/Assay Time	Analysis	Notes
10/4/21	ATD-10	1:00pm	L4-Dilute	Wet
10/4/21	ATD-10	1:00pm	Metals	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet
10/4/21	ATD-10	1:00pm	Organic	Wet

Upon receipt assays were scheduled for the following analytes:

- Analysis: • L4-Dilute (USP SPN 1624)-Urgent TAT + 7 Samples
- L4-Dilute (USP SPN 1624)-Standard TAT + 2 Samples

Sample Receipt, Chain of Custody Records, and Holdup Times

Samples were delivered directly to ATS by full Corporation staff. Samples were received with paper chain of custody records included. Sample condition and anomalies, if any, are older referenced in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 15 days of receipt of the following exception:

- No

Consultant in Chemistry & Environmental Science
25 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734.265.5721

ORGANIC ANALYSIS DATA SUMMARY SHEET

File No.: G001-002 Report Date: 10/4/21 ATS Project: Full Corporation Report ID: G001-002

Organic Analysis Data Summary Sheet

File No.: G001-002 Report Date: 10/4/21 ATS Project: Full Corporation Report ID: G001-002

Organic Analysis Data Summary Sheet

File No.: G001-002 Report Date: 10/4/21 ATS Project: Full Corporation Report ID: G001-002



**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
14 South Wagner Road
1st Floor, Suite 1000, PO Box 3272
Michigan Department of Environment,
Great Lakes and Energy
Water Resources Laboratory D-1000

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
14 South Wagner Road
1st Floor, Suite 1000, PO Box 3272
Michigan Department of Environment,
Great Lakes and Energy
Water Resources Laboratory D-1000

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
14 South Wagner Road
1st Floor, Suite 1000, PO Box 3272
Michigan Department of Environment,
Great Lakes and Energy
Water Resources Laboratory D-1000

**Organic Analysis
Data Summary Sheet**

For: Mr. George Trendel
PCL Corporation
542 South Wagner Road
Ann Arbor, MI 48103

ATD Project: PCL Corporation
Report Date: 10/4/21
ATD SPP: 0202011

Sample Identification: PCLC-3a
Sample Date: 9/29/21
Sample Time: 7:30 AM
Sampled By: Client
Laboratory Receipt Date: 9/29/21
Sample Metric: Water

Parameter: Organic Analyses
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.027
Reporting Limit: 0.001
Analysis Date: 9/29/21
Analysis Time: 21:00
Analyzed By: GLC

For: Mr. George Trendel
PCL Corporation
542 South Wagner Road
Ann Arbor, MI 48103

ATD Project: PCL Corporation
Report Date: 10/4/21
ATD SPP: 0202011

Sample Identification: PCLC-3a
Sample Date: 9/29/21
Sample Time: 7:30 AM
Sampled By: Client
Laboratory Receipt Date: 9/29/21
Sample Metric: Water

Parameter: Organic Analyses
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.026
Reporting Limit: 0.001
Analysis Date: 9/29/21
Analysis Time: 21:04
Analyzed By: GLC

For: Mr. George Trendel
PCL Corporation
542 South Wagner Road
Ann Arbor, MI 48103

ATD Project: PCL Corporation
Report Date: 10/4/21
ATD SPP: 0202011

Sample Identification: Output Test
Sample Date: 9/29/21
Sample Time: 7:30 AM
Sampled By: Client
Laboratory Receipt Date: 9/29/21
Sample Metric: Water

Parameter: Organic Analyses
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.026
Reporting Limit: 0.001
Analysis Date: 9/29/21
Analysis Time: 21:08
Analyzed By:

For: Mr. George Trendel
PCL Corporation
542 South Wagner Road
Ann Arbor, MI 48103

ATD Project: PCL Corporation
Report Date: 10/4/21
ATD SPP: 0202011

Sample Identification: Output Test
Sample Date: 9/29/21
Sample Time: 7:30 AM
Sampled By: Client
Laboratory Receipt Date: 9/29/21
Sample Metric: Water

Parameter: Organic Analyses
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.026
Reporting Limit: 0.001
Analysis Date: 9/29/21
Analysis Time: 21:12
Analyzed By:

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Indicates not available / applicable.
Sample analyzed at native pH.

Rev. 10/4/21

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Rev. 10/4/21

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Rev. 10/4/21

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Rev. 10/4/21

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
14 South Wagner Road
1st Floor, Suite 1000, PO Box 3272
Michigan Department of Environment,
Great Lakes and Energy
Water Resources Laboratory D-1000

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
14 South Wagner Road
1st Floor, Suite 1000, PO Box 3272
Michigan Department of Environment,
Great Lakes and Energy
Water Resources Laboratory D-1000

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
14 South Wagner Road
1st Floor, Suite 1000, PO Box 3272
Michigan Department of Environment,
Great Lakes and Energy
Water Resources Laboratory D-1000

**Quality Assurance / Quality Control
Data Summary**

For: Mr. George Trendel
PCL Corporation
542 South Wagner Road
Ann Arbor, MI 48103

ATD Project: PCL Corporation
Report Date: 10/4/21
ATD SPP: 0202011

Sample Identification: Comb CS
Sample Date: 9/29/21
Sample Time: 7:16 AM
Sampled By: Client
Laboratory Receipt Date: 9/29/21
Sample Metric: Water

Parameter: Organic Analyses
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.025
Reporting Limit: 0.001
Analysis Date: 9/29/21
Analysis Time: 21:17
Analyzed By: GLC

For: Mr. George Trendel
PCL Corporation
542 South Wagner Road
Ann Arbor, MI 48103

ATD Project: PCL Corporation
Report Date: 10/4/21
ATD SPP: 0202011

Sample Identification: MN-11
Sample Date: 9/29/21
Sample Time: 12:59 PM
Sampled By: Client
Laboratory Receipt Date: 9/29/21
Sample Metric: Water

Parameter: Organic Analyses
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: 0.026
Reporting Limit: 0.001
Analysis Date: 9/29/21
Analysis Time: 0:01
Analyzed By: GLC

For: Mr. George Trendel
PCL Corporation
542 South Wagner Road
Ann Arbor, MI 48103

ATD Project: PCL Corporation
Report Date: 10/4/21
ATD SPP: 0202011

Sample Identification: MN-11
Sample Date: 9/29/21
Sample Time: 12:30 AM
Sampled By: Client
Laboratory Receipt Date: 9/29/21
Sample Metric: Water

Parameter: Organic Analyses
1,4-Dioxane

Method: US EPA 1624
Units: mg/L
Result: >0.021
Reporting Limit: 0.001
Analysis Date: 9/29/21
Analysis Time: 0:46
Analyzed By:

MI South Wagner Road
14 South Wagner Road
1st Floor, Suite 1000, PO Box 3272
Michigan Department of Environment,
Great Lakes and Energy
Water Resources Laboratory D-1000

**Quality Assurance / Quality Control
Data Summary**

ATD Project: PCL Corporation
Report Date: 10/4/21
Parameter: T-2-Dioxane (LPC, TIC)

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (Percent)
K001-002 ATD Tap Water 9/29/21 Matrix Spike	0.020 mg/L	0.020 mg/L	0.020 mg/L	10.0

SPKES and QC CHECK SAMPLES

Sample/Analyte	Known Concentration	Spiked Concentration	Analyzed Concentration	Recovery (percent)
K001-002 Laboratory Spiked Sample ATD Tap Water 9/29/21 Matrix Spike ATD Tap Water 9/29/21 Matrix Spike Duplicate	<0.01 mg/L <0.01 mg/L <0.01 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	0.010 mg/L 0.010 mg/L 0.010 mg/L	100 100 100

BLANK ANALYSIS

Sample	Analyzed Concentration	QC Spiked
Laboratory Reagent Blank	<0.01 mg/L	Acceptable

Comments:

Calibration performed prior to testing.
Reference: Laboratory Control Sample Recovery (51-112%)
Actual Sample Recovery (51-112%)
Relative Range: 100%

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Indicates not available / applicable.
Sample analyzed at native pH.

Comments:
All methods reference US EPA methods unless otherwise noted.
na = Indicates not available / applicable.
Sample analyzed at native pH.

Rev. 10/4/21

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Rev. 10/4/21



**LABORATORY OPERATIONS
CASE NARRATIVE**

CHAIN OF CUSTODY RECORD

ATS Project Number: CD01-002
Report Date: 10/4/21
SRP / SDG Number(s): 0929211
Client PO Number: 4594859421

Data Descriptive Summary

This case narrative applies to the following nine samples that were received at Ales Abler Technical Services, Inc. (ATS) on 9/29/21, and analyzed using specific QAQC:

Sample Name	Sample Type	Sample ID	Received Date	Sample Analysis Type	Analysis	Method
Chemical	Chemical	1001-002	2021-09-29	Urgent	Urgent	
Cougar	Cougar	1002-002	2021-09-29	Urgent	Urgent	
Crabs	Crabs	1003-002	2021-09-29	Urgent	Urgent	
Cougar	Cougar	1004-002	2021-09-29	Urgent	Urgent	
Ducks	Ducks	1005-002	2021-09-29	Standard	Standard	
Elephant	Elephant	1006-002	2021-09-29	Standard	Standard	
Fish	Fish	1007-002	2021-09-29	Standard	Standard	
Giraffe	Giraffe	1008-002	2021-09-29	Standard	Standard	
Horse	Horse	1009-002	2021-09-29	Standard	Standard	
Kangaroo	Kangaroo	1010-002	2021-09-29	Standard	Standard	
Lion	Lion	1011-002	2021-09-29	Standard	Standard	
Panda	Panda	1012-002	2021-09-29	Standard	Standard	
Reindeer	Reindeer	1013-002	2021-09-29	Standard	Standard	
Seal	Seal	1014-002	2021-09-29	Standard	Standard	
Tiger	Tiger	1015-002	2021-09-29	Standard	Standard	
Zebra	Zebra	1016-002	2021-09-29	Standard	Standard	

Upon receipt samples were scheduled for the following analysis:

- Analysis** **Number of Samples**
- 1,4-Dioxane (US EPA 1024) - Urgent TAT
 - 1,4-Dioxane (US EPA 1024) - Standard TAT
 - 2 Samples

Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody documentation. Sample condition and availability, if any, are other presented in the "Sample Receipt" section of this report or in associated analytical data sheets. All weights were prepared and analyzed within 45 days of the following exception:

- None

GM01-0021-CH_NPN11.xls

Customer's Name: Chemistry & Environmental Sciences
206 South Wagner Road, Ann Arbor, Michigan 48103 Tel: 734/995-3701 Fax: 734/995-3701

Data Review and Analysis

All data contained in this report have been generated in accordance with guidelines provided in the referenced methods. Sample analysis was conducted according to laboratory developed operating procedures (LDPs) specific to the ATS Laboratory, as required by US EPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data contained in the laboratory's Quality Assurance / Quality Control Measures.

A single QAQC batch is defined as an batch with 20 samples containing methods blank (MB), Limit, Referred Blanks (RB), LDR, LCR, matrix spikes (MS), SPK), and duplicates (either spike or matrix (MD, MK, DU, DUP, LA).

Data Deliverables

This data package constitutes a Level II package; minor data report packages (Level I, Level IV DDP, EPA R5 EDD) are available upon request. There were no laboratory data testimony sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (CD01-002) Samples were analyzed by purge and trap GCMS in accordance with US EPA method 1024 (Volatile Organic Compounds by Headspace Gas Chromatography - Mass Spectrometry). An initial calibration with at least three levels was used to quantitate 1,4-Dioxane. Samples were reported in project specific reporting units. Samples were reported as mg/L.

Assurance Matrix

- None

Analytical Data/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exception:

Instrument Checks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument checks met the acceptance criteria with the following exception:

OAI/QC Hatch Summary

Internal Standards

Internal standards were used and retention times and the acceptance criteria with the following exceptions:

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QAQC batch. The LRB's met the acceptance criteria with the following exception:

Laboratory Certified Reference Materials/Laboratory Control Samples

A laboratory certified blank (LFB) was analyzed with each QAQC batch. The LFB's met the acceptance criteria with the following exception:

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QAQC batch. The MS/MSD's met the acceptance criteria with the following exception:

Matrix Repliques

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QAQC batch. The replicates met the acceptance criteria with the following exception:

GM01-0021-CH_NPN11.xls
Customer's Name: Chemistry & Environmental Sciences
206 South Wagner Road, Ann Arbor, Michigan 48103 Tel: 734/995-3701 Fax: 734/995-3701

Organic Analysis Data Summary Sheet

For Mr. Greg Trindell
Pall Corporation
1042 South Wagner Road
Ann Arbor, MI 48103

ATS Project: PALL CORPORATION
Report Date: 10/4/21
ATS SRN: 0020011

Sample Identification: Overall
Sample Date: 09/29/21
Sample Time: 11:28 AM
Sampled By: Client
Laboratory Receipt Date: 09/29/21
Sample Metric: Weight

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1024
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/29/21
Analysis Time: 08:30
Analyst: SPK

GM01-0021-CH_NPN11.xls
Customer's Name: Chemistry & Environmental Sciences
206 South Wagner Road, Ann Arbor, Michigan 48103 Tel: 734/995-3701 Fax: 734/995-3701

Organic Analysis Data Summary Sheet

For Mr. Greg Trindell
Pall Corporation
1042 South Wagner Road
Ann Arbor, MI 48103

ATS Project: PALL CORPORATION
Report Date: 10/4/21
ATS SRN: 0020011

Sample Identification: PALL-1A
Sample Date: 09/29/21
Sample Time: 07:18 AM
Sampled By: Client
Laboratory Receipt Date: 09/29/21
Sample Metric: Weight

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1024
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/29/21
Analysis Time: 16:10
Analyst: SPK

GM01-0021-CH_NPN11.xls
Customer's Name: Chemistry & Environmental Sciences
206 South Wagner Road, Ann Arbor, Michigan 48103 Tel: 734/995-3701 Fax: 734/995-3701

Organic Analysis Data Summary Sheet

For Mr. Greg Trindell
Pall Corporation
1042 South Wagner Road
Ann Arbor, MI 48103

ATS Project: PALL CORPORATION
Report Date: 10/2/21
ATS SRN: 0020012

Sample Identification: PALL-002
Sample Date: 09/29/21
Sample Time: 11:18 AM
Sampled By: Client
Laboratory Receipt Date: 09/29/21
Sample Metric: Weight

Parameter: Organic Analysis
1,4-Dioxane
Method: US EPA 1024
Units: mg/L
Result: 0.000
Reporting Limit: 0.001
Analysis Date: 09/29/21
Analysis Time: 14:54
Analyst: SPK

Comments:
All methods reference US EPA methods unless otherwise noted.
No - indicates not available / applicable.
Sample evaluated at matrix level.

Comments:
All methods reference US EPA methods unless otherwise noted.
No - indicates not available / applicable.
Sample evaluated at matrix level.

Comments:
All methods reference US EPA methods unless otherwise noted.
No - indicates not available / applicable.
Sample evaluated at matrix level.



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 10/4/21
SRP / SDC Number(s): 0930211
Client PO Number: 4504859621

Case Narrative Summary

This case narrative applies to the following ten samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 9/20/21, and associated matrix-specific QA/QC.

Sample	Client Sample Identification	Sample Date	Received Date	Analyzed By	Matrix
Receives:					
1	0930211	09/20/21	09/20/21	L.Chen	Water
2	0930211	09/20/21	09/20/21	L.Chen	Water
3	0930211	09/20/21	09/20/21	L.Chen	Water
4	0930211	09/20/21	09/20/21	L.Chen	Water
5	0930211	09/20/21	09/20/21	L.Chen	Water
6	0930211	09/20/21	09/20/21	L.Chen	Water
7	0930211	09/20/21	09/20/21	L.Chen	Water
8	0930211	09/20/21	09/20/21	L.Chen	Water
9	0930211	09/20/21	09/20/21	L.Chen	Water
10	0930211	09/20/21	09/20/21	L.Chen	Water
11	0930211	09/20/21	09/20/21	L.Chen	Water

Upon receipt samples were scheduled for the following analyses:

- | | |
|--|---|
| Sample | Number of Samples |
| • 1-4-Deine (USP/EP 1624) - Liquid TAT | • 8 Samples |
| • 1-4-Deine (USP/EP 1624) - Standard TAT | • 2 Samples • 1 Matrix Spike + 1 Matrix Spike Duplicate |

Sample Receipt, Chain of Custody Records, and Holding Time

Samples were delivered directly to ATS by PDI Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the "Sample Receipt" section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days of the following exception:

- None

G001-002.LCH_0930211.xls

Consultant in Chemistry & Environmental Science
256 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-3731

Data Review and Approval

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method, are consistent with detailed procedures described in a written standard operating procedure, and are representative of the sample tested. All data set prior and intermediate samples to ensure compliance with the above referenced SOP's and project specifications. In addition, all data contained in the laboratory's Quality Assurance / Quality Control Manual.

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MS, LCR), fortified blanks (FB, LS, LCF, LCR), matrix spikes (MS, SW), and duplicates whether spiked or native (MSD, SWD, DUP, SW).

Data Deliverables

The data package constitutes a Level II package; other data report packages (Level I, Level IV DTP, IPA, RIS EDP) are available upon request. There were no laboratory data summary sheets generated for this project.

Sample Analysis

1-Deine (USP/EP 1624) samples were analyzed by point and trap GC/MS in accordance with USP/EP 1624 (1-Deine, Deinamine, Deinamine, 1-Deine Deinamine Gas Chromatography - Mass Spectrometry). An initial calibration with or below the levels was used to quantitate 1-Deine. Standards were reported in project specific reporting limits. Samples were reported as mg/L.

Anomalous Notes:

Analytical QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a mid-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low-dose background was determined through the analysis of instrument blanks at a maximum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standards criteria and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exception:

- None

Laboratory Fortified Blanks / Laboratory Control Samples

A laboratory fortified blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exception:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MS/MSD's met the acceptance criteria with the following exception:

- None

Matrix Repliques

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exception:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and analyzed for those compounds. The following samples were diluted for 1-Deine:

- TM-10 SWD1
- TM-14 SWD1

Mark Blatong

(October 4, 2021)

Mark Blatong (Quality Assurance Coordinator)

Philip B. Simon

(October 4, 2021)

Philip B. Simon (Laboratory Director)

Organic Analysis Data Summary Sheet																																																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">PDI Project</td> <td style="width: 15%;">Data Generation</td> <td style="width: 10%;">G001-002</td> <td style="width: 10%;">ATS Project</td> <td style="width: 15%;">Data Generation</td> <td style="width: 10%;">G001-002</td> </tr> <tr> <td>Pat Corporation</td> <td>0930211</td> <td>Report Date:</td> <td>09/20/21</td> <td>PDI Corporation</td> <td>0930211</td> </tr> <tr> <td>642 South Wagner Road</td> <td></td> <td>ATS DR#:</td> <td>0930211</td> <td>642 South Wagner Road</td> <td></td> </tr> <tr> <td>Ann Arbor, MI 48103</td> <td></td> <td></td> <td></td> <td>Ann Arbor, MI 48103</td> <td></td> </tr> </table>		PDI Project	Data Generation	G001-002	ATS Project	Data Generation	G001-002	Pat Corporation	0930211	Report Date:	09/20/21	PDI Corporation	0930211	642 South Wagner Road		ATS DR#:	0930211	642 South Wagner Road		Ann Arbor, MI 48103				Ann Arbor, MI 48103																																			
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Sample Identification	Output	Parameter	Method	Units	Reporting Limit	Analysis Date	Analysis Time	Analyst																																																			
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Laboratory Report Date:	09/20/21	Laboratory Report Date:	09/20/21																																																								
Sample Matrix:	Water	Sample Matrix:	Water																																																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">Parameter</td> <td style="width: 15%;">Organic Analyte</td> <td style="width: 10%;">Method</td> <td style="width: 15%;">Units</td> <td style="width: 10%;">Result</td> <td style="width: 15%;">Reporting Limit</td> <td style="width: 10%;">Analysis Date</td> <td style="width: 10%;">Analysis Time</td> <td style="width: 15%;">Analyst</td> </tr> <tr> <td>Parameter</td> <td>Organic Analyte</td> <td>Method</td> <td>Units</td> <td>Result</td> <td>Reporting Limit</td> <td>Analysis Date</td> <td>Analysis Time</td> <td>Analyst</td> </tr> <tr> <td>Organic Analyte</td> <td>1-Deine</td> <td>US EPA 1624</td> <td>mg/L</td> <td>0.005</td> <td>0.001</td> <td>09/20/21</td> <td>16:47</td> <td>SLB</td> </tr> </table>						Parameter	Organic Analyte	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyst	Parameter	Organic Analyte	Method	Units	Result	Reporting Limit	Analysis Date	Analysis Time	Analyst	Organic Analyte	1-Deine	US EPA 1624	mg/L	0.005	0.001	09/20/21	16:47	SLB																											
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Comments:
All methods reference US EPA methods unless otherwise noted.
• = Method not available / applicable.
Sample analyzed or tested (t).

Comments:
All methods reference US EPA methods unless otherwise noted.
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Sample analyzed or tested (t).

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All methods reference US EPA methods unless otherwise noted.
• = Method not available / applicable.
Sample analyzed or tested (t).

G001-002.LCH_0930211.xls

10/4/21

0930211.DATP.DAT

10/4/21

0930211.DATP.DAT

10/4/21

0930211.DATP.DAT

10/4/21



**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
For MI: Geige Trend
MI South Wagner Road
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
For MI: Geige Trend
MI South Wagner Road
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
For MI: Geige Trend
MI South Wagner Road
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

**Organic Analysis
Data Summary Sheet**

ATC Project: 00001-002
Report Date: 05/20/21
ATC SRF: 0000011

ATC Project:
Report Date:
ATC SRF:

ATC Project: 00001-002
Report Date: 05/21/21
ATC SRF: 0000011

ATC Project: 00001-002
Report Date: 05/21/21
ATC SRF: 0000011

ATC Project: 00001-002
Report Date: 05/21/21
ATC SRF: 0000011

Sample Identification: 00001-002
Sample Date: 05/02/21
Sample Time: 08:45 AM
Sampled By: Clet
Laboratory Report Date: 05/02/21
Sample Matrix: Water

Parameter: 1,4-Dioxane
Method: US EPA 1524
Units: mg/L
Result: 0.001
Reporting Limit: 0.0001
Analysis Date: 05/01/21
Analysis Time: 21:15
Analysted By: SLS

Sample Identification: 00001-002
Sample Date: 05/02/21
Sample Time: 08:45 AM
Sampled By: Clet
Laboratory Report Date: 05/02/21
Sample Matrix: Water

Parameter: 1,4-Dioxane
Method: US EPA 1524
Units: mg/L
Result: 0.005
Reporting Limit: 0.001
Analysis Date: 05/01/21
Analysis Time: 21:00
Analysted By: SLS

Sample Identification: 00001-002
Sample Date: 05/02/21
Sample Time: 08:45 AM
Sampled By: Clet
Laboratory Report Date: 05/02/21
Sample Matrix: Water

Parameter: 1,4-Dioxane
Method: US EPA 1524
Units: mg/L
Result: 0.001
Reporting Limit: 0.0001
Analysis Date: 05/01/21
Analysis Time: 21:45
Analysted By: SLS

Sample Identification: 00001-002
Sample Date: 05/02/21
Sample Time: 08:45 AM
Sampled By: Clet
Laboratory Report Date: 05/02/21
Sample Matrix: Water

Parameter: 1,4-Dioxane
Method: US EPA 1524
Units: mg/L
Result: 0.007
Reporting Limit: 0.001
Analysis Date: 05/01/21
Analysis Time: 22:26
Analysted By: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.
Sample analysis is pending (p).

Comments:
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.
Sample analysis is pending (p).

Comments:
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.
Sample analysis is pending (p).

Comments:
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.
Sample analysis is pending (p).

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File: 10401



**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
For MI: Geige Trend
MI South Wagner Road
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

**Organic Analysis
Data Summary Sheet**

MI South Wagner Road
For MI: Geige Trend
MI South Wagner Road
Michigan Laboratory Co., Inc.
Michigan Laboratory Co., Inc.

**Quality Assurance / Quality Control
Data Summary**

ATC Project: 00001-002
Report Date: 05/20/21
ATC SRF: 0000011

ATC Project:
Report Date:
ATC SRF:

ATC Project: 00001-002
Report Date: 05/21/21
ATC SRF: 0000011

ATC Project Number: Q0001-002
Parameter: 1,4-Dioxane (EPA 1524)
Report Date: 05/21/21

Results of QA Samples run concurrently with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
K0001-002 Tin-14 (1000 ppm Spike)	0.29 mg/L	0.29 mg/L	0.29 mg/L	12.4

CHAIN OF CUSTODY RECORD

Page 1

Q0001-002	00001-002	00001-002	00001-002	00001-002
Geige Trend				
05/20/21	05/20/21	05/21/21	05/21/21	05/21/21
0000011	0000011	0000011	0000011	0000011

Sample Identification: 00001-002
Sample Date: 05/02/21
Sample Time: 08:45 AM
Sampled By: Clet
Laboratory Report Date: 05/02/21
Sample Matrix: Water

Parameter: 1,4-Dioxane
Method: US EPA 1524
Units: mg/L
Result: 0.71
Reporting Limit: 0.01
Analysis Date: 05/01/21
Analysis Time: 23:13
Analysted By: SLS

Sample Identification: 00001-002
Sample Date: 05/02/21
Sample Time: 08:45 AM
Sampled By: Clet
Laboratory Report Date: 05/02/21
Sample Matrix: Water

Parameter: 1,4-Dioxane
Method: US EPA 1524
Units: mg/L
Result: 0.30
Reporting Limit: 0.01
Analysis Date: 05/01/21
Analysis Time: 23:07
Analysted By: SLS

Sample Identification: 00001-002
Sample Date: 05/02/21
Sample Time: 08:45 AM
Sampled By: Clet
Laboratory Report Date: 05/02/21
Sample Matrix: Water

Parameter: 1,4-Dioxane
Method: US EPA 1524
Units: mg/L
Result: 0.001
Reporting Limit: 0.0001
Analysis Date: 05/01/21
Analysis Time: 23:45
Analysted By: SLS

Comments:
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.

Comments:
All methods reference US EPA methods unless otherwise noted.
na - indicates not available / applicable.

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File: 10401

File: 10401

File: 10401

File: 10401

File: 10401



LABORATORY OPERATIONS CASE NARRATIVE

ATS Project Number: G001-002
Report Date: 10/7/21
SRF / SDC Number(s): 1006211
Client PO Number: 4504859621

This date report contains the results of one water sample, received by ATS on 10/02/21, to be analyzed for 1,4-Dioxane.

We certify that the sample analysis for this report have been conducted in accordance with guidelines provided in the Standard Test Method and all applicable detailed procedures described in the relevant Standard Operating Procedure (SOP) or ATS Laboratory Standard Operating Procedure (SOP). Laboratory Control Charts, QCPs, and QA/QC Information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

Recipient: Ms. Sue Peters Email: Sue.Peters@Fall.com
Fax Number:

No. of Pages (including cover page): 8
From: Sarah Shabotefard Email: Sarah.Shabotefard@fallcorporation.com
Senior Chemist Lab Manager Fax Number: 734-685-3751

Additional Message:

Date: 10/7/21 Signed:

IF YOU DO NOT RECEIVE ALL PAGES OF THIS TRANSMITTAL, PLEASE CALL 734-685-6820.

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G001-0021Data_Transmittal_Cover_Page.G001

Organic Analysis Data Summary Sheet

Fall Corporation
542 South Wagner Road
Ann Arbor, MI 48103
Report Date: 10/7/21
ATS SRF: 1008211

Sample Identification: 4141, Arthur Road

Sample Date: 9/12/21
Sample Time: 12:27 PM
Sample ID: Glass
Laboratory Receipt Date: 10/6/21
Sample Matrix: Water

Parameter: Organic Analysis
1,4-Dioxane

Method: US-EPA 1624
Units: mg/L
Result: 0.002
Reporting Limit: 0.001
Analysis Date: 10/6/21
Analysis Time: 17:32
Analyst: S. Peters

Quality Assurance / Quality Control Data Summary

QC Batch Number: G001-00211
Parameter: 1,4-Dioxane (EPA 1624)
Report Date: 10/7/21

Results of QA Samples run concomitantly with project samples

Sample	Replicate #1	Replicate #2	Mean	Relative Range (percent)
G001-00211 TWB-10/1/21 Water Spike	0.40 mg/L	0.76 mg/L	0.58 mg/L	4.5

Sample/Analyte	Known Concentration	Spiked Concentration	Analyzed Concentration	Relative Error (percent)
G001-00211 Laboratory Fertilized Blank TWB-10/1/21 Matrix Spike TWB-10/1/21 Matrix Spike Duplicate	0.001 mg/L 0.40 mg/L 0.40 mg/L	0.010 mg/L 0.40 mg/L 0.40 mg/L	0.010 mg/L 0.32 mg/L 0.38 mg/L	-10.3 -6.0 +8.0

Sample	Analyzed Concentration	QC Decision
G001-00211 Laboratory Reagent Blank	<0.001 mg/L	Acceptable

Comments:
Calibration performed prior to testing.

Control Limits:
Recovery:
Laboratory Control Sample Recovery (0 - 110%)
Matrix Spike Recovery (0 - 100%)
Relative Error:
Repeatability (< 20%)

Comments:
All methods reference US-EPA methods unless otherwise noted.
n = indicates not available / applicable.

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301-0021108F10003110902_G001_10014211

Data Deliverables

This data package constitutes a Level I package; other data report packages (Level I, Level IV DVM, EPA R5 EDD) are available upon request. There were no history data summary sheets generated for this project.

Sample Analysis

1,4-Dioxane Analysis (GOMS): Samples were analyzed by gas and liquid GC/MS in accordance with US-EPA method 1624 (Volatile Organic Compounds by Ionization Chromatography - Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported in project specific reporting limits. Samples were reported as mg/L.

Anomalous Data

- None

Analyzed QA/QC Summary

Calibration Verification

Method calibration was verified through the analysis of a gold-level initial calibration verification (CV) standard at a frequency of every 12 hours. All verification standards met the acceptance criteria with the following exceptions:

- None

Instrument Blanks

Low system background was demonstrated through the analysis of instrument blanks at a minimum of every 12 hours. All instrument blanks met the acceptance criteria with the following exceptions:

- None

QA/QC Batch Summary

Internal Standards

Internal standard areas and retention times met the acceptance criteria with the following exceptions:

- None

Laboratory Reagent Blanks

A laboratory reagent blank (LRB) was analyzed with each QA/QC batch. The LRB's met the acceptance criteria with the following exceptions:

- None

Laboratory Fertilized Blanks / Laboratory Control Samples

A laboratory fertilized blank (LFB) was analyzed with each QA/QC batch. The LFB's met the acceptance criteria with the following exceptions:

- None

Matrix Spikes and Spike Duplicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The MSD's met the acceptance criteria with the following exceptions:

- None

Matrix Replicates

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed with each QA/QC batch. The replicates met the acceptance criteria with the following exceptions:

- None

Sample Dilutions

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- None

Mark Delong
October 7, 2021

Mark T. Delong (Quality Assurance Coordinator)

Philip B. Stoen (Laboratory Director)

G001-00211CN_10014211.xls

G001-00211CN_10014211.xls

G001-00211CN_10014211.xls

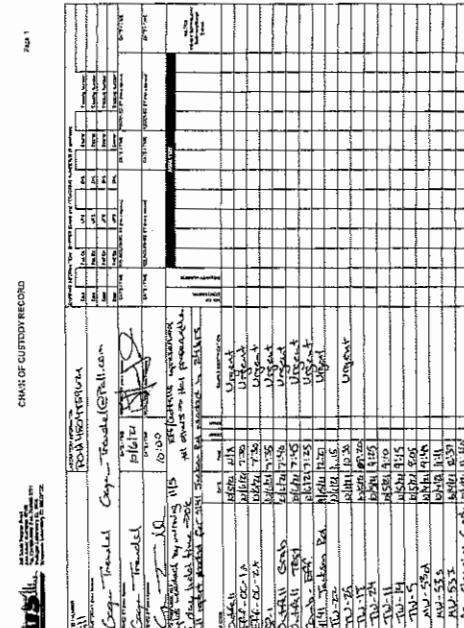


Fig. 1

